DOCUMENT RESUME

ED 078 325 CG 008 061

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TITLE The Ninth Grade Characteristics of Students Entering Different Tenth Grade Curricula: VDS Altoona Sample.
INSTITUTION Pennsylvania State Univ., University Park. Dept. of Vocational Education.
SPONS AGENCY Pennsylvania Research Coordinating Unit for Vocational Education, Harrisburg.
REPORT NO VDS-Monog-10
PUB DATE Apr 73
NOTE 130p.

EDRS PRICE MF-$0.65 HC-$6.58
DESCRIPTORS Careers; Curriculum; *Curriculum Research; Longitudinal Studies; Occupational Information; School Personnel; *Secondary School Students; *Student Characteristics; Tables (Data); *Vocational Development; *Vocational Interests
IDENTIFIERS VDS; *Vocational Development Study

ABSTRACT

This is the tenth monograph in the Vocational Development Study (VDS) series which has resulted from a continuing research effort conducted in the Department of Vocational Education at Pennsylvania State University. While the focus of the VDS Project is to develop a greater understanding of the vocational development process using longitudinal data gathered over a ten-year period, this report is intended primarily for the more applied needs of school personnel, especially in the state of Pennsylvania. The first section of the report describes the community (Altoona) and the ninth grade sample drawn from its environment. The second section describes the primary variables utilized in this report. The five curricula which were available for the ninth graders to choose as alternative high school paths are described; ninth grade characteristics from the cognitive, affective, and socioeconomic domains profiling these children are also examined. The final and major portion of the report contains suggestions for reading and using the tables and profiles which comprise the section. (Author/SES)

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THE PENNSYLVANIA STATE UNIVERSITY
DEPARTMENT OF VOCATIONAL EDUCATION

THE NINTH GRADE CHARACTERISTICS OF STUDENTS ENTERING DIFFERENT TENTH GRADE CURRICULA: VDS ALTOONA SAMPLE

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Pennsylvania Department of Education
Bureau of Vocational, Technical and Continuing Education
Research Coordinating Unit
(Project No. 19-2007)

VOCATIONAL — TECHNICAL EDUCATION Research Report

VOCATIONAL DEVELOPMENT STUDY SERIES

VDS MONOGRAPH, NUMBER 10

APRIL, 1973

The Ninth Grade Characteristics of Students Entering Different Tenth Grade Curricula: VDS Altoona Sample

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April, 1973

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PREFACE

This is the tenth monograph in the Vocational Development Study (VDS) series which has resulted from a continuing research effort conducted in the Department of Vocational Education at Penn State with the support of the Pennsylvania Vocational Education Research Coordinating Unit (RCU).

The focus of the VDS Project is to develop a greater understanding of the vocational development process using longitudinal data gathered over a ten year period. The samples utilized for the study consist of the entire 1968-1969 ninth grade class from Altoona, Pennsylvania and the entire 1970-1971 ninth grade classes from Hazleton and Williamsport, Pennsylvania. While some of the previous research reports dealing with this data have been more basic with less immediate application in the school setting, this report is primarily intended for the more applied needs of school personnel in Pennsylvania and especially in Altoona. Two additional reports similar to this one using Hazleton and Williamsport data are planned for the near future.

As current project director, I would like to pay a tribute to all of the Altoona school personnel who have worked so diligently in cooperating with the VDS staff to make this project possible.

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VDS CAPSULE

It is the intent of these blue pages to provide a brief summary of the important aspects of the findings of this report along with their implications. The intent of this report is primarily to describe the Altoona sample in terms of their ninth grade characteristics as they relate to their tenth grade curriculum choice. Since no particular questions were asked concerning the relationship between student characteristics and curriculum choice there are no particular findings on which to focus. Furthermore, the statistics used to examine differences among curricula, while they could be considered to be inferential statistics, are intended primarily for their descriptive value.

The general outline of this report differs somewhat from previous VDS reports. Chapter I rather than dealing with a problem statement describes the community of Altoona and the ninth grade sample drawn from this community environment. Chapter II describes the primary variables utilized in this report. First of all, the five curricula which were available for the Altoona ninth graders to choose as alternative high school paths are described. Secondly, the ninth grade characteristics from the cognitive, affective and socioeconomic domains which were available to the VDS Project staff for profiling these ninth graders are described. The descriptions provided are brief, but are sufficient to allow the reader to obtain all the information necessary to interpret the tables and figures which comprise Chapter III. Chapter III itself contains an introduction with suggestions for reading and using the tables and profiles which make up the chapter.

Without focusing on any particular findings or implications, a number of suggestions can be made for the use of the information presented in this report. For those who are interested in the entire longitudinal VDT Project, this report provides the information necessary to draw some conclusions concerning the generalizability of findings based on the Altoona sample. Where the characteristics of this sample and the population from which it was drawn are judged to be similar to other school systems in Pennsylvania or elsewhere in the nation, findings from studies using this data could be applicable to these other school settings.

With the increasing number of Career Education experimental projects underway both in Pennsylvania and nationally, the data presented here could be used as baseline information where such external norm group information is necessary. For counselors and school administrators who have similar data and wish to make use of it for planning, evaluation or selection purposes, the information in this report could provide a much needed frame of reference. Where data on standardized tests are presented, the information could be used as norms which may be superior to national norms because of greater similarity of the sample to a particular local school situation. Suggestions for the use of the data for counseling purposes with future Altoona ninth graders have been pointed out in the introduction to Chapter III.

Finally, the data presented in the tables and figures in Chapter III can be examined to discover a multitude of relationships which might be of interest to school personnel as well as educational researchers. The analysis of any one variable across the five curricula constitutes a mini-study in itself which could answer a particular question concerning whether students in curriculum X (e.g. vocational) score higher or lower

on a particular measure than students in curriculum Y, Z, etc. Similarly, where categorical data is presented, the frequency of belonging to particular categories could be analyzed for each curriculum. Examining the data in this way could help answer important practical questions for school personnel as well as provide insights which could lead to future areas of inquiry for educational researchers.

I

COMMUNITY AND SAMPLE

Introduction

There are many environmental factors which have an effect on student development and decision making. This chapter describes the social and economic background of the Altoona Community. This description is intended to give the reader an understanding of those community factors outside the school which effect the Altoona student sample. This information has been condensed from a series of reports published by the Altoona City Planning Commission. The information has been supplemented by several other sources, including data from the Altoona Chamber of Commerce and the 1970 United States Census.

Following the description of the Altoona Community is a description of the Altoona student sample used in this report. The sample consists of all the 1969 Altoona ninth grade students enrolled in the public school system who remained in that system through the tenth grade.

Community

The city of Altoona is located in south central Pennsylvania between Harrisburg and Pittsburgh. The development of Altoona and Blair County has been largely affected by its topography, which has dictated settlement patterns, location of transportation routes, and suitable areas for residential and industrial development. The topography greatly hampered early forms of transportation. The Pennsylvania Canal, traveling west

from Harrisburg, was able, with the use of locks, to follow a nearly level route till reaching Hollidaysburg, just southwest of where Altoona became located. Here the Allegheny front presented a formidable barrier. The canal engineers designed an inclined plane system. This system, the Portage Railroad, first used mules, then steam engines, to transport the canal boats by railroad car over the Allegheny front. The steam engine soon caused Altoona to be developed as a repair depot.

While the topography of the Blair County area determined the need of a service town, it also hindered further settlement of the area. The location of present day urban areas, highways, railroads, and airports has been determined by the pattern of steep mountain ridges and relatively flat valleys. In most cases, roads still follow the early Indian trails across the valleys and through mountain gaps.

History

The decade between 1850 and 1860 marked the beginning of a new and vastly improved system of transportation, the railroad. It was during this period that Altoona grew to a flourishing borough of approximately 4,000 inhabitants. Altoona was founded in 1849 as a terminal on the new Pennsylvania Railroad. There remains contention over where the town borrowed its name. The more logical explanation is that an engineer on the railroad named the place Altoona after Altona, an important German railway and manufacturing city. The popular explanation, however, is that one of the founders derived the name from allatoona believing the word meant "the high lands of great worth." In the Cherokee language there is a word eladunic, "where it is high," but to a Cherokee, this is so different from allatoona that the latter could hardly be derived from the former.

As the Pennsylvania Railroad grew, Altoona grew. It became the maintenance center and major repair shop for the entire railroad system. During the Civil War, Altoona manufactured coaches, flat cars and engines, causing the town to expand rapidly. As more people settled in Altoona to work for the railroad, other community facilities grew. Altoona grew from birth to maturity more quickly than most American cities.

The early settlers of Altoona were the highly skilled railroad workmen largely Germans and Italians who found good wages and ability to apply their skills in the railroad yards. More than 50 percent of these early workers purchased their homes, giving them a community interest and community pride. Unfortunately, the area grew in a fast and haphazard fashion with the railroad using the majority of the available valley floor. The area for homes was for the most part hilly ground. The early homes were built on lots 25 feet wide and the houses were built adjacent to the sidewalk. When most of the employees walked to work, this was convenient, but the advent of the automobile made this type of construction obsolete, and has caused modern day problems for the city.

As the city was founded by the railroad, so was it supported. The Pennsylvania Railroad from 1850-1930 was the major source of employment for the majority of the working population. Though the community is now aware of the hazards of a one-industry community, there are several reasons why they remained one for so long. The majority of industrially suitable land was used by the railroad or for housing and small business. During the era of the steam engine and major railway car building the railroad consumed the majority of the water supply available. Other reasons include the industrial immobility of the times, the general prosperity of the community, the adequate wages of the employees, (no

unions were needed or desired by the railroad workers during that period) and the general pride and contentment of the community in having the world's largest railroad facilities.

In 1927 and 1928, the railroad payroll reached an all time high of $20,350,000 per year, in sharp contrast to the 1933 depression year payroll, a figure barely 50 percent of that. The mass layoffs led the Chamber of Commerce to stress for diversification of the area's industrial base. In 1934, an industrial expansion fund collected $125,000 in contributions, which resulted in three new industries. As a result of this success, Altoona Enterprises, Inc. was inaugrated in 1946 to transact business necessary to raise money to assist in financing new industrial buildings. A 1954 campaign was known as "Jobs for Joes," and in 1964, "More Jobs for Joes" was started. The return on these investments has been realized in expanding industrial and manufacturing firms. The manufacturing employment has increased significantly since 1965 and approximately 2,700 new jobs can be attributed directly to the efforts of Altoona Enterprises and other interested parties.

Population

The population growth of Altoona has directly paralleled the economic growth of the city. From its incorporation in 1849, the city of Altoona experienced a steady growth in population until the decade between 1930 and 1940. For this decade, the population decreased from 82,054 to 80,214, a 2.2 percent decline. Following World War II, railroad employment dropped, causing out-migration which decreased the population throughout the 40's and 50's. Only a part of this loss could be attributed to people moving to suburban areas outside the city, the majority

were leaving to seek improved economic opportunities. Analysis show that the vast majority of those migrating out of the city were from the age groups between 20 and 34 years old. The out-migration of these age groups produced a secondary effect which reduced the city population; the reduction in child producing age groups caused the birth rates to steadily decline while deaths remained relatively stable.

After analyzing the present and past economic situation, population projections for the year 2000 have been developed. The method used incorporates age specific mortality statistics, fertility statistics, and migration trends in addition to basic subjective assumptions. The resulting projection shows an upward population trend from the present 62,900 to 87,700 by the year 2000.

This growth trend, while seemingly modest, is significant when contrasted to the declining population trend Altoona has experienced over the past three decades. The basic reason for the expected improvements is the growing economic strength of the entire Altoona area.

Economy

Altoona's economy has evolved from a railroading past due to its location on the eastern slope of the Allegheny Mountains. As a result of the decline in railroad industry, unemployment reached extreme proportions during the 50's causing a considerable labor surplus. The skilled labor force and good labor relations were instrumental in the community efforts to change the economic base to diversified manufacturing and industry. With this change, unemployment levels began to decline in 1961 and are presently reaching a point of full employment. The unemployment rate for 1968 averaged 4.3 percent.

Approximately 50 percent of the manufacturing employment in Altoona is in firms that are relatively insensitive to changes in the business cycle. This is important in the stability of the economy. This is far better than the period when Altoona's base was dominated by the railroad, a highly sensitive industry. Persons employed in manufacturing in the Altoona Standard Metropolitan Statistical Area increased by 7,900 between 1950 and 1969, a growth of 110 percent. This area has been largely responsible for the rapid growth of the entire economy.

Trends in retail trade indicate that, although total sales are increasing, the older established retail areas such as the Central Business District are losing customers to shopping centers outside the city. While total retail establishments have declined in the 50's and 60's, it is expected that this trend will be reversed when the downtown urban renewal is completed. The city's wholesale trade has likewise shown total sales increases during the past decade while the number of establishments in Altoona have decreased.

Since 1963, the Altoona per capita and family income have been increasing at a rate greater than the national average. However, in 1969, for over 21,000 families in the work force, the median income of $8,105 was $1,595 below the average median for all American cities of comparable size.

The location of the Penn Central main line and the numerous public utilities has made Altoona and its urbanized area more attractive to industrial development than the rest of the county. Another favorable attribute is its geographic location, midway between the Boston-New York-Philadelphia-Washington megalopolis and the Pittsburgh-Cleveland Metropolitan Complex. The location provides major market areas within easy

reach and should become especially attractive when the highway relocation of Interstate Routes 22 and 220 are completed, facilitating rapid trucking to and from the area.

Finance

In order to operate a government which serves its constituents revenue must be acquired from whatever source possible. A major source of revenue for the city is derived from real estate taxes. In Altoona the City Assessor determines the market valuation of all property in the city. A 60 percent factor is then applied to determine the assessed valuation of each property. Against the assessed valuation a millage is applied to determine the amount of yearly taxes required. Each mill is one thousandth of a dollar or one tenth of a cent.

Altoona has had a continually increasing valuation as a tax base between 1960 and 1969. This is due, in part, to new building, building replacement, and rehabilitation. The existing millage rate of 17.5 mills is well below the legal limit for Pennsylvania cities of this size. The 1965 per capita revenue of $61.37 placed Altoona in the middle of third-class Pennsylvania cities. Expenditures have shown increasing trends since 1962, exemplifying the increased demand for services and increased cost of the same.

The revenues for Altoona somewhat exceed the expenditures, but a serious effort is needed to increase the percentage of the total budget set aside for capital expenditures in the future. A ten percent figure is desired for long range capital improvement programs. The financial record and status of Altoona are in excellent condition relative to bonded indebtedness. The City Planning Commission recommends that

capital improvements may best be implemented in the near future by prudent borrowing rather than saving for construction later, because continually increasing costs may be greater than the interest paid to borrow the money.

Projections for revenue and expenditure trends over the next ten years indicate expenditures will outrun revenue unless additional revenue sources can be found.

Housing

All of the social and economic aspects of society are closely related to their level of housing. The physical structures which people live in are barometers of their progress. Nothing of a physical nature relates more to the way people develop socially and economically than the housing supply.

Altoona has experienced several cycles of economic development and decline. Like much of the nation, it has a problem in terms of housing age, condition, and peoples attitude toward new development. The trend toward suburbanization has caused the percentage of housing units in the city compared to the county to decline. The past decade has shown fluctuations in the city's housing units due to the see-saw effect of new construction versus demolitions of old facilities. The majority of new housing consists of single family dwellings in perimeter areas of the city while demolitions are in the central city sections. The general condition of housing is related to age; in 1960, 86 percent of all housing units were over 30 years old. In comparison with other third-class Pennsylvania cities, Altoona had the smallest percentage of sound housing units and the highest percentage of deteriorating units.

Since 1960 demolition projects have considerably reduced the number of dilapidated units. Over 65 percent of the housing units are owner occupied; over 90 percent of these are single family units.

The only minority race of significant size in the city is the Black population, which represents just over one percent of the inhabitants. Only 45 percent of the Blacks own their homes as compared to 70 percent of the white population. Eighty percent of these Black owned homes have a market value less than $7,500. To achieve overall community balance will necessitate an atmosphere of open selection of housing for all persons of similar economic means. A policy of social acceptance of all persons should be a prime factor in all future housing projects in the city.

Projections indicate the need for some 6,000 new housing units by the year 2000. Unless much existing housing is rehabilitated the total new housing could reach 12,000. The 1970's will be the most crucial period in the program for improving the housing inventory of the city. During this period it will be necessary to compensate for the lag in the 1950's and 1960's. Planning efforts will have to consider residential use for future development of vacant land, as well as considering higher density development and providing a choice of housing types in new construction. Attention must be given to updating codes and ordinances governing new construction to allow for improved and innovative housing techniques.

Land Use

Altoona has a total land area of 9.1 square miles, approximately 80 percent of this area is developed. Residential land constitutes the

largest single use of land in the city, about 36 percent of the total land or over 45 percent of the developed area. The next largest category of land use is transportation, communication, and utilities, occupying 28 percent of the land. This includes streets and right of ways, parking lots, railroad shops and right of ways, plus various other transportation uses. One other large category, 20 percent, is vacant land.

The overall land use is somewhat haphazard due to the lack of zoning in the past and more recently liberal zoning variances. Most of the commercial development is in a strip-like fashion along the major arteries (This has been detrimental to residential areas and has restricted traffic circulation.) A further problem is the industrial "spine" which parallels the Penn Central Railroad's main line and divides the city. This industrial swath creates a physical barrier to city transportation as it can only be crossed by a limited number of streets and bridges.

While most of the neighborhoods on the city periphery have vacant land for residential development, future industrial use could be accomodated by vacant land along the railroad. Presently, there is a considerable amount of idle railroad land with excellent potential for industrial development.

Transportation

The role of railroad transportation has been crucial to the development and growth of Altoona, and will remain an important factor in the economy. Other transporation crucial to the operation of the city include, truck traffic, private passenger automobiles, and mass transit. The planned limited access Route 220 and 22 relocation should be an economic boon to Altoona. This expressway, in reducing travel time to and from

the city, should encourage commercial concerns which have increasingly used trucks to transport goods. Within the city, in order to preserve the integrity of the neighborhoods, it will be necessary to develop truck routes.

A large number of the city streets are of inadequate width, while lack of proper planning has resulted in too many local streets intersecting major arteries or non-uniform access to primary arteries.

Altoona is presently directing efforts toward improving the transportation network. The city has recognized the effect a circulation system has on land values, land development, and the basic stability and economy of the area. The projected changes include truck routes, redesign and building of major arteries over the next 30 years and improvements to existing streets. Mass transit is an integral part of the system and a transportation center is planned in an effort to develop a coordinated and efficient transportation system.

Social Needs and Characteristics

The "real" problems of a community are not its transportation system, inadequate housing, poor streets or lack of recreation sites; the "real" problems are the people and their relationship to the physical, social, and economic environment. While the people influence the conditions, they also suffer from the deficiencies created. It seems apparent that problems of the physical and economic environment are directly related to the psychological and social environment of the population. When the social characteristics of population such as unemployment, education, income, age, and race are combined with the physical characteristics, the social needs of the population can more accurately be evaluated.

The ethnic makeup of Altoona represents most European nationalities; English, Scotch and Irish make up the majority of the early inhabitants followed by Germans and Italians. Approximately two percent of the population is non-white, with Blacks composing the majority of this group.

Employment figures for 1971 indicate that despite flucuations, the unemployment in Altoona remained near that year's national average of five and three-quarter percent. Female workers contribute 37 percent of the total employed labor force of approximately 34,500 people.

The median family income in Altoona in 1969 was near $8,100, lower than the average Pennsylvania city of similar size by some $1,600. The age composition of Altoona consists of 31 percent 18 years of age and under, 54 percent 18 to 64 years of age, and 14 percent over 65. Only the 18 tc 64 age group is less populated than the average for an urban area of this city's size. This is indicative of the out-migration which occurred in the 50's and 60's.

Like any other city, Altoona has its social problems, high school dropouts, juvenile delinquency, welfare recipients, unemployed and underemployed individuals; the causes of which are almost impossible to determine and difficult to correct. In many cases the problems result from a combination of social, physical, psychological, and economic needs.

Altoona has recognized that the areas of concentrated social problems coincide with the areas which have considerable inadequacies in various physical facilities such as housing. Planning is underway to integrate and coordinate efforts to solve both the physical and social needs of the city.

Educational System

If there is an American ethic in our society, part of that ethic encompasses the necessity of public school education in improving our society. Altoona's realization of the value of education to society has not eliminated the financial problems facing the educational system. The same economic problems which have affected the city's growth have also hurt the school system.

The Altoona Area School District includes Altoona, Logan Township, and the southern part of Tyrone Township. A nine member elected board determines policy for the district, and the office of the Superintendent of Schools administers the district policies.

A survey taken during the 1968-1969 school year revealed a shortage of accommodations at all levels. Of the 26 schools in the district, nine were over 100% capacity and eleven were between 90 and 100% capacity. The most critical shortage was in the Altoona Area High School which was 46% above capacity. The Altoona Area Vo-Tech School which opened in 1970 eased the situation somewhat, and the addition to the high school now under construction should further alleviate the overcrowding. Another deficiency is the age of the individual school buildings, many are over 50 years old. These old buildings lack efficiency and are not conducive to modern teaching techniques. Literally all of the public schools will have to be renovated or replaced during the 1970's and 1980's with the exception of the Vo-Tech school and the new Wright Elementary School.

The Vo-Tech school, high school and Roosevelt Junior High School are located within a 95 acre redevelopment project. The area is being developed as a concentrated educational and recreational facility. Besides these schools, a new library is also located there. Library

construction was completed in 1968, costing 1.6 million dollars. The vocational-technical high school was completed in 1970 at a cost of 7.5 million dollars and has an enrollment capacity of 1,680 students. Projections indicate the 43 shops will offer education in some 3[illegible] different trade areas.

Vocational Education has long been a part of the Altoona area, in particular, by providing trained employees for the railroad shops. The new area vocational technical school's (AVTS) diversification in skill areas is opportune when considering Altoona's present labor situation. Altoona no longer has a surplus of skilled people in the labor supply. The capabilities of this school will significantly influence industrial development and economic growth.

In the 1968-69 school year, there were approximately 14,000 students in the public school system. Altoona Area High School, serving grades 10 through 12, had 3,300 pupils and the three junior high schools, Keith, Logan and Roosevelt, served 3,260 students in grades 7 through 9. The student to teacher ratio for both junior and senior high averaged 19 to 1.

Approximately 3,500 students in Altoona are educated in parochial schools. There are presently ten elementary schools and one high school under the administration of the Altoona-Johnstown Catholic Diocese. Altoona also has one of Penn State's twenty-one branch campuses. The 90 acre campus has an enrollment of 1,700 full-time students and 2,100 in the continuing education program. The Altoona Campus is a two-year college offering both an associate degree and the first two years of many of the Penn State baccalaureate curricula.

Study Sample

The Department of Vocational Education at The Pennsylvania State University undertook a ten-year longitudinal study within the Altoona school system in the Fall of 1968. The project was developed to identify the effects of the high school experience on youth and relate the knowledge to curriculum planning and vocational guidance. For this reason the Altoona Area High School Class of 1972 was selected for study. The parochial high school students were not included in this investigation.

Inputs into the development of students are being investigated and analyzed through this project; these inputs include both personal and environmental factors which affect student development. Because the impact of the physical environment can be very significant to the social development of students, the general information provided in this chapter was intended to create a better understanding of the factors affecting the student sample selected for study.

Initial data on the Altoona students were collected in the Spring of 1969 when the sample was completing ninth grade. At that time, student abilities, interests, values, and biographical information were tested and inventoried. During the Summer of 1969, junior high school records were reviewed and additional data collected.

The size of the Altoona sample is approximately 1,200 students. Data were collected for all students in the 1972 graduating class beginning with those enrolled in ninth grade in 1969 and including any student who came into the sample before the class graduated in 1972. During the initial data collection the students were attending one of the three Altoona junior high schools, Keith, Logan or Roosevelt. During tenth grade all students in the sample attended Altoona High School or attended

both the high school and the adjacent Vocational Technical School. Data is being retained for any student dropouts or any student who transfers out of the school district. Though incomplete data is available on this type of individual, sufficient information may be present for particular investigations. For those students who have been part of the sample throughout the entire time period investigated, the data is almost complete. This is the result of several make-up and follow-up activities. Overall, of the 1,200 students who have ever participated in the sample, the data collection is about 85 percent complete for any one variable.

This report deals only with the student information collected in the ninth grade. This information has been collected and recorded on computer tape. To preserve confidentiality, numbers have been substituted for student names in retrieving the data from tape.

The sample sizes used in this report will vary, depending upon which variables are being investigated. In most cases, the sample variables will contain approximately 1,000 students. The variable investigated having the smallest sample size is the Personal Traits variable with an N of 847.

II

DESCRIPTION OF CHARACTERISTICS

Introduction

In this chapter the curriculum variable and the student variables will be described. The curriculum variable consists of the curriculums in which the students were enrolled at the end of tenth grade. This variable was assessed at this point in time for its increased stability over any earlier possible collection time. The selection of a curriculum by each student is greatly affected by student characteristics or variables. These student variables are expected to be closely correlated with curriculum choice. The student variables used in this report have been collected from student records, inventories, and tests. These variables are described in the second section of this chapter.

Curriculum Variable

In this monograph curriculum choice will be investigated. This variable is the high school curriculum the student has elected to take. There are basically five different curriculums from which the Altoona high school student may choose. These curriculums are: Academic, Business, Home Economics, Secretarial, and Vocational-Technical. In an academic curriculum the student may specialize in particular areas, such as mathematics, science, language, music and art. The academic curriculum is designed to fulfill the requirements needed for the student planning to attend college. Both the business and secretarial curriculums are

intended to prepare the student who plans to enter office employment upon graduation from high school. The secretarial sequence provides vocational training for students who want to become stenographers and secretaries. The business curriculum offers an accounting sequence and a clerical sequence. The accounting sequence is vocational and is planned to prepare students for accounting positions following graduation. The clerical sequence is recommended to meet the needs of students who wish to do general clerical work in an office. The home economics curriculum has four sequences planned to meet the needs of students who expect to become homemakers following graduation; seek employment in occupations based on the skills and knowledge of home economics, combine homemaking and work, or take advanced training in home economics, nursing, merchandising, interior decorating, or costume design. The vocational-technical curriculum is intended for the student who wishes to obtain an employable skill upon graduation from high school. The program is designed to prepare students for industrial employment in trade or technical areas. While the program is not intended to be college preparatory in nature, proper scheduling of academic courses will prepare the student for further education.

In the Altoona school system each student is expected to make a decision with regard to curriculum by the end of ninth grade or early in tenth grade. While a decision concerning curriculum may be changed at a later date, scheduling, loss of credits, and other factors prevent this from occurring with any frequency. Curriculum choice, then, is a decision of lasting impact which should be made with considerable forethought. This decision is also instrumental in determining social and occupational direction because of the different preparation provided by the available

curriculums. Curriculum choice, therefore, must be considered a major decision point in a student's career. It is this variable which will be the focal point of this report in terms of describing the students junior high school characteristics. The designation of a particular curriculum for each individual in the sample was made according to the student's actual curriculum at the end of tenth grade. By selecting the completion of tenth grade in a particular curriculum as indication of a student's choice, the initial early changes which normally take place were discounted. This should result in a reasonable amount of stability in the curriculum variable.

Student Variables

There are several different inputs which affect the curriculum choice decision of a student. Some of these inputs are immeasurable. A possible chance occurrence is one such variable. Fortunately, many input variables are measurable. Several of these will be investigated to determine their relationship to curriculum choice. These various inputs and their measurement instruments are described below. Reference is made to the tables in Chapter Three where these variables are related to the curriculum choice variable.

General Aptitude Test Battery

The General Aptitude Test Battery (GATB) was selected because it contained manipulative as well as cognitive ability testing. Because the Altoona sample has a high percentage of students enrolled in the vocational curriculum this seemed most appropriate.

The GATB was developed by the United States Employment Service (USES) in 1947 for use in employment counseling with adults and was later extended

for use at the ninth and tenth grade level. The battery takes approximately two and one-quarter hours to administer and is composed by 12 subtests which yield the following aptitude scores.

G - Intelligence--General learning ability. The ability to "catch on" or understand instructions and underlying principles; the ability to reason and make judgments. Closely related to doing well in school.

V - Verbal Aptitude--The ability to understand meaning of words and to use them effectively. The ability to comprehend language, to understand relationships between words and to understand meanings of whole sentences and paragraphs.

N - Numerical Aptitude--Ability to perform arithmetic operations quickly and accurately.

S - Spatial Aptitude--Ability to think visually of geometric forms and to comprehend the two-dimensional representation of three-dimensional objects. The ability to recognize the relationships resulting from the movement of objects in space.

P - Form Perception--Ability to perceive pertinent detail in objects or in pictorial or graphic material. Ability to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines.

Q - Clerical Perception--Ability to perceive pertinent detail in verbal and tabular material. Ability to observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation.

K - Motor Coordination--Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and swiftly.

F - Finger Dexterity--Ability to move the fingers and manipulate small objects with the fingers, rapidly and accurately.

M - Manual Dexterity--Ability to move the hands easily and skillfully. Ability to work with the hands in placing and turning motions.

The GATB has its scores normalized to an adult population so that the mean score is 100 and the standard deviation is 20. It is normal,

however, for high school students to vary slightly from these norms. Sometimes the means and almost always the standard deviations for high school students are lower than that of the adult population. The main concern in Table 1 is the comparison of means and standard deviations by curriculum. Sex becomes a factor, as the home economics, business and secretarial curriculums have a majority of females, while the vocational-technical curriculum has a majority of males.

Occupational Values

The occupational values of the Altoona students have been assessed by the Occupational Values Inventory (OVI). The OVI was developed by Impellitteri and Kapes at The Pennsylvania State University. It was first published in 1968. The OVI assesses the following seven occupational values:

a. Interest and Satisfaction - One likes the work; enjoys it; is happy at it; fulfills oneself by doing it.

b. Advancement - One perceives the opportunity to get ahead in the work; sees a good future in it; it provides an opportunity to improve oneself.

c. Salary - One perceives the financial return resulting from the work; can make a good living at it; sees it as an opportunity for a good income.

d. Prestige - One is impressed by the respectability attached to the work; can earn recognition from it; desires the feeling of importance that goes with it.

e. Personal Goal - One sees the work as fitting into his way of life; is what one always wanted to do; has been shooting for it; it's the ideal.

f. Preparation and Ability - One can succeed in the work; is good at it; it's where one's talents lie; is suited to it.

g. Security - One can obtain employment in this work; perceives that workers are needed in it; there will always be openings in it.

The seven occupational values assessed by the OVI have been analyzed for their relationship to the five Altoona High School curriculums in Table 2. In this table are found the means and standard deviations of each curriculum for every occupational value. The instrument is designed such that the choice of one value precludes the choice of another, therefore, while a student may score from 0 to 30 on any one value, a high score on one occupational value necessitates a low score somewhere else. The total score on all occupational values will sum to 105. If a student considered all values of equal importance he would in theory score 15 on each value.

School Grades

Grades for English, language, mathematics, science, shop and social studies have been collected from the school record files for seventh, eighth, and ninth grades. The shop grade represents an Industrial Arts experience for boys and a Home Economics experience for girls. Language instruction and language grades only exist as part of the ninth grade curriculum. In Table 3 the grades have been combined by subject area and analyzed by curriculum (Academic, Business, Home Economics, Secretarial, or Vocational).

This table demonstrates subject area means and standard deviations for each curriculum. From this table general trends can be seen for each curriculum and comparisons made between level of student achievement in various curriculums. The grades represented in this table, A, B, C, D, and F, have been converted to a five point scale for mathematical manipulation (A = 5, B = 4, etc.).

Attendance

The student's attendance record has been recorded for seventh, eighth and ninth grades. This has been noted as number of days absent during each school year. Table 4 demonstrates the average number of days missed by students in each curriculum. No distinction was made between legal absenses and truencies, nor are tardies recorded.

Vocational Development Inventory

Crites (1965) has developed an instrument to measure vocational maturity called the Vocational Development Inventory. The VDI consists of 50 statements with which the person taking the inventory agrees or disagrees. The test is easily administered in a few minutes and the resulting score is interpreted through age norms to yield an index of vocational maturity. The Vocational Development Inventory maturity scores have been computed and grouped by curriculum. Table 5 shows the mean score and standard deviation of each curriculum for this instrument.

The scores on the VDI may range from 0 to 50. Norms established for Pennsylvania ninth grade students show a mean of 34.69, a standard deviation of 4.93, and a range of 19 to 47.

California Achievement Test

The sample was administered the California Achievement Test (CAT) in the FAll of 1967 as part of the school system's regular testing program. The test used was the 1957 edition, 1963 norms, Form W. The battery is composed of three major test areas with two subdivisions each. The subdivisions are further broken down into sections for the specific subject area. The six major subtests are: Reading Vocabulary, Reading

Comprehension, Arithmetic Reasoning, Arithmetic Fundamentals, Mechanics of English, and Spelling. The battery is intended to be comprehensive and useful primarily in facilitating educational measurement, evaluation and diagnosis of junior high school students. An excellent feature of the CAT is that norming coincides with the California Short-Form Test of Mental Maturity which facilitates comparisons between achievement and academic aptitudes. Tables 6 through 15 demonstrate the achievement levels of the Altoona sample as measured by the CAT. The scores are recorded in the school records in percentiles and are presented in the tables in decile form.

Biographical Information

Several pieces of information have been classified under the broad heading of biographical information. This material is largely family background information collected through a questionnaire administered to the students during the ninth grade.

Father's Education--Father's education was recorded according to the following seven categories: (1) one through five years; (2) six through eight years; (3) nine through eleven years; (4) high school graduate or twelve years; (5) one year through three years of college; (6) college graduate; and (7) college graduate plus additional graduate studies. These seven categories were compared to the five high school curriculums in Table 16. This table demonstrates the effect that father's education exerts on his child's educational alternatives.

Father's Occupation--The student listed his father's occupation which was collected and recorded in two ways. The occupation was identified according to the occupational identification numbers from the Dictionary

of Occupational Titles. Father's occupation was also converted to the following six levels of Anne Roe's classification scheme: (1) Professional and Managerial I; (2) Professional and Managerial II; (3) Semi-professional and Small Business; (4) Skilled; (5) Semi-skilled; and (6) Unskilled. Two other classifications were added to the Roe classification system, Retired and Unemployed. Table 17 has categorized father's occupational level to the student's curriculum enrollment.

Mother's Education--Mother's education was recorded by the same seven categories as father's education. Table 18 relates student curriculum to mother's educational level.

Mother's Occupation--Mother's occupation was recorded by DOT and Roe in the same fashion as father's occupation. Table 19 shows the relationship between mother's occupational level and student curriculum enrollment.

Income--The total family income was obtained if the student volunteered this information. Over 60 percent of the sample either did not know or preferred not to answer this question. The information was collected by broad categories, assuming that ninth grade students were unlikely to have precise information of parental income. The following categories were created for use in Table 20: Did Not Know/Did Not Wish to Respond, $0 - $2,999, $3,000 - $5,999, $6,000 - $8,999, and $9,000 and above.

Sex--The sex of each student in the sample has been recorded since it does have a bearing on several research topics. Table 21 shows the number of males and females in each of the five curriculums.

Birth Order--From the number and position of siblings, the birth order of the Altoona students was determined and recorded. Many

psychologists and sociologists attribute considerable significance to birth order and family size as factors affecting child development. Table 22 demonstrates the relationship between birth order and curriculum enrollment.

Number of Children--The size of each student's family can be approximated by the data collected in regard to siblings. Each student was asked to record the number of older brothers, older sisters, younger brothers and younger sisters in his family. Table 23 exhibits the number of children in the family of those students found in each of the school curriculums. This table demonstrates the significance of family size upon the curriculum in which the student is enrolled.

Hobbies and Interests

Students were asked to list the hobbies and extra-curricular activities in which they participated. They were encouraged to list all kinds of activities whether organized or not. The 14 most commonly listed activities were selected as categories and each student was recorded as participating or not participating in that activity. The activities were: collecting, watching sports, playing sports, T.V. watching, music, hunting, fishing, camping, hiking, scouting, model building, church organization participation, school organizational participation, and reading. One additional category was included for activities not otherwise accounted for. Table 24 demonstrates the number of these activities in which students in each curriculum participated.

Educational Plans

Students were asked two questions about their plans to attend college. One, ideally, if they saw no restrictions such as financing, high school

grades, lack of a chosen field of study, etc., would they attend college. Two, when realistically considering their particular abilities, attitudes, and financial situation, do they plan to attend college. Tables 25 and 26 show the number of students in each curriculum who plan to attend college.

Grades Repeated

A piece of information collected and recorded was the "grade repeated" by each student. This information was recorded by category. The categories were: no grades repeated, grade one, two, or three repeated; grade four, five, or six repeated; grade seven, eight, or nine repeated; more than one grade repeated. In Table 27 these categories are related to the five school curriculums.

Personal Traits

The information collected under the title of "personal traits" is in reality, the teacher's evaluation of the student's conduct. The rating scale allows three alternatives, poor, satisfactory and excellent on six variables; industry, reliability, appearance, initiative, social adjustment and emotional adjustment. This information was collected for each of the three years from the junior high school record, resulting in 18 separate ratings. These ratings were converted from a three point scale to a five point scale and the average was computed for a "personal traits" total recorded on the data tape. Table 28 exhibits the frequency distribution of students by personal trait level in each curriculum category.

III

TABLES AND PROFILES OF CHARACTERISTICS ANALYZED BY CURRICULUM

Introduction

The following pages of this report are comprised of tables and figures which profile each of the characteristics analyzed for the five curriculums available to students in the Altoona High School. As stated previously, the characteristic data was collected near the end of ninth grade while the curriculum classification information was collected near the end of tenth grade. This format allows for the junior high information to be considered as a predictor of curriculum choice in high school.

In reading Chapter III, it can be noted that the tables present the data in one of two different formats. Where the data is continuous, the means and standard deviations have been presented and an overall "F" statistic calculated to test the hypothesis that all means are equal. The probability that the differences among the means occurred by chance is presented in the last column of each table. Where the probability of a non-chance difference is high (beyond .05 or .01), it would be possible to look at differences between individual means for any two curricula if the reader wishes to do so. In this case, a "t" test could be calculated using the means and standard deviations provided.

When the data was categorical rather than continuous a frequency distribution using a chi-square analysis was the form chosen to present the data. Where the overall chi-square value is found to be significant (beyond .05 or .01) the reader may conclude that the characteristic

being considered does not distribute itself equally among the five curricula. An inspection of the table will tell the reader which curricula possesses a higher or lower frequency than could have been expected. The expected frequency for each curriculum and category is equal to the row total times the column total divided by the grand total for the table.

In order to make the information presented in the tables more useful to counselors, a set of figures or profiles is provided for each table. These profiles graphically depict the data. For continuous data the profiles include the mean and two standard deviations above and below the means. The mean is depicted as a V-shaped buldge in the middle of the distribution. The wide bar represents plus or minus one standard deviation or approximately the middle two thirds of the distribution of the sample. The narrow black line extends to plus or minus two standard deviations and encompasses approximately 95 percent of the distribution of the sample. The narrow bars are sometimes truncated due to extending to the floor or ceiling of the particular measure. Whenever possible profiles were constructed for each variable over the five curricula as well as for each curriculum over all the variables where a measure contained multiple variables (e.g. GATB, OVI).

For categorical data the profiles are composed of line graphs or bar graphs depicting the percent of the curriculum sample in each category. In some cases, the percent of the total sample depicted in the graph is also included where this information appeared to be useful (e.g. Income, Grades Repeated).

It is expected that presenting the information in this way will make it useful for the counseling process as well as providing an overall description of the sample in each curriculum. For counseling

purposes, it is suggested that a transparency be made of the individual profiles which could then be used in a number of ways. Profiles for measures with multiple variables could be stacked together and examined simultaneously to obtain a combined profile. Profiles among curricula could also be examined in this way. Perhaps the most useful comparison technique of this nature would be to create individual student profiles for whatever variables are available for the particular student involved. This student profile could then be placed under the corresponding curriculum profile transparency which is of interest to the student. In this way the similarities and differences between the characteristics of the student and those of previous students who have enrolled in that curriculum could be examined.

Table 1: Means and Standard Deviations of GATB Scores by Curriculum[a]

N = 1019

GATB	Voc. Tech. N = 308	Acad. N = 419	Sec. N = 101	Bus. N = 105	Home Econ. N = 86	F Ratio	Probability[c]
General[b]	93.24 (12.38)	98.18 (13.59)	94.16 (11.42)	87.63 (10.97)	89.58 (13.78)	20.43	0.001
Verbal	91.36 (10.21)	96.68 (10.70)	93.57 (9.41)	89.86 (8.86)	90.87 (11.06)	18.02	0.001
Numerical	93.85 (12.36)	100.48 (12.52)	98.98 (12.88)	92.82 (11.44)	93.77 (13.28)	18.13	0.001
Spatial	100.55 (15.34)	101.22 (15.95)	96.85 (13.88)	93.06 (14.07)	93.34 (14.67)	10.40	0.001
Form Perception[b]	98.14 (17.25)	103.95 (15.33)	104.74 (16.14)	101.57 (12.35)	100.77 (16.47)	7.00	0.001
Clerical	98.89 (11.25)	106.39 (12.29)	107.69 (11.80)	104.08 (11.19)	103.69 (13.17)	20.81	0.001
Motor Coordination	87.67 (14.47)	95.63 (14.46)	98.03 (16.11)	96.74 (14.67)	90.69 (14.17)	18.57	0.001
Finger Dexterity	92.60 (17.88)	97.46 (18.53)	99.73 (18.97)	96.63 (19.24)	95.58 (19.94)	4.24	0.002
Manual Dexterity	88.48 (17.30)	88.81 (18.27)	86.31 (17.69)	87.49 (18.76)	82.20 (18.78)	2.69	0.030

[a]The standard deviation values are in parentheses.

[b]The chi-square value from a Bartlett's test for homogeneity of variance does not support the hypothesis of equal population variances at the .05 significance level.

[c]The probability that the obtained F Ratio occurred by chance.

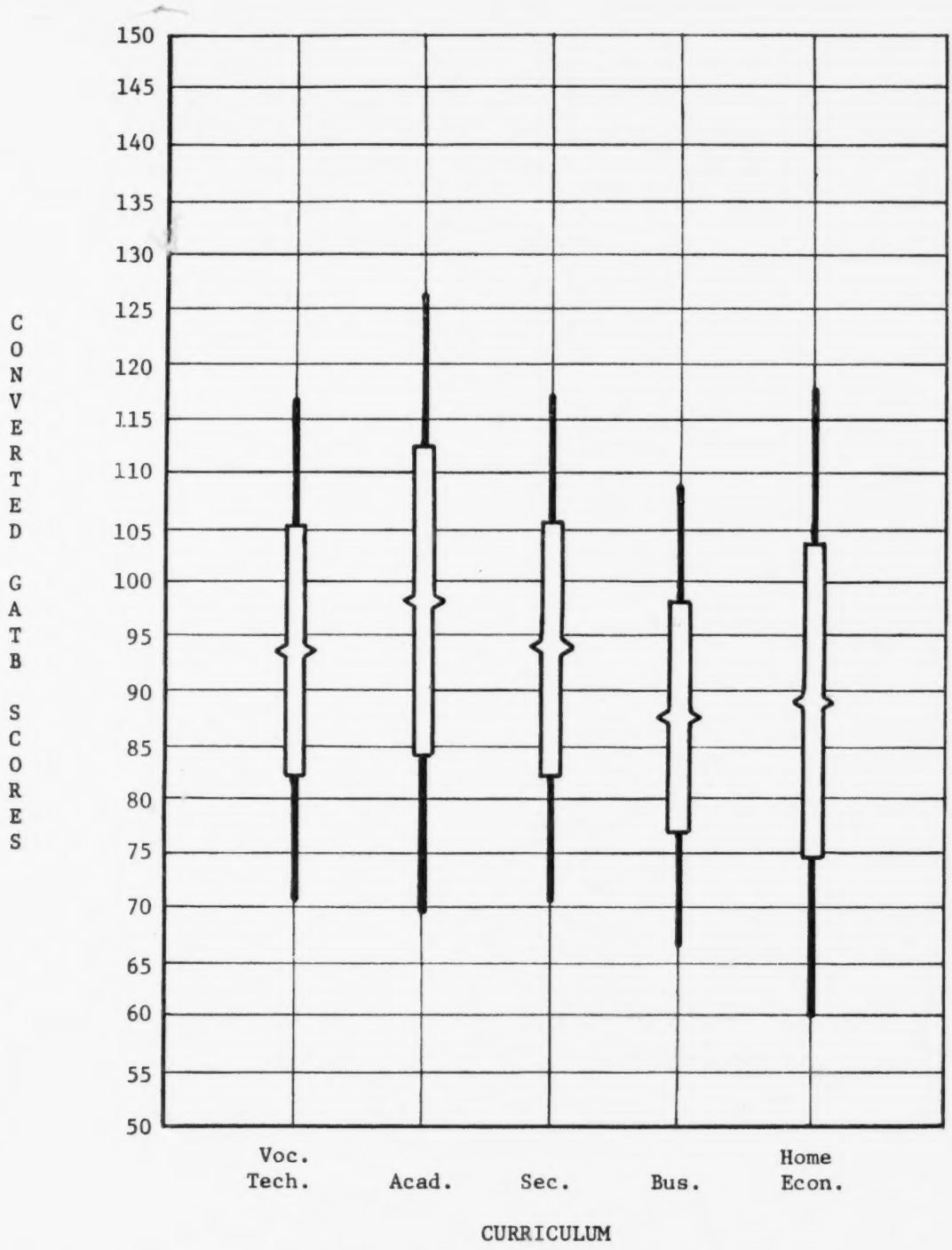

Figure 1: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-General Intelligence

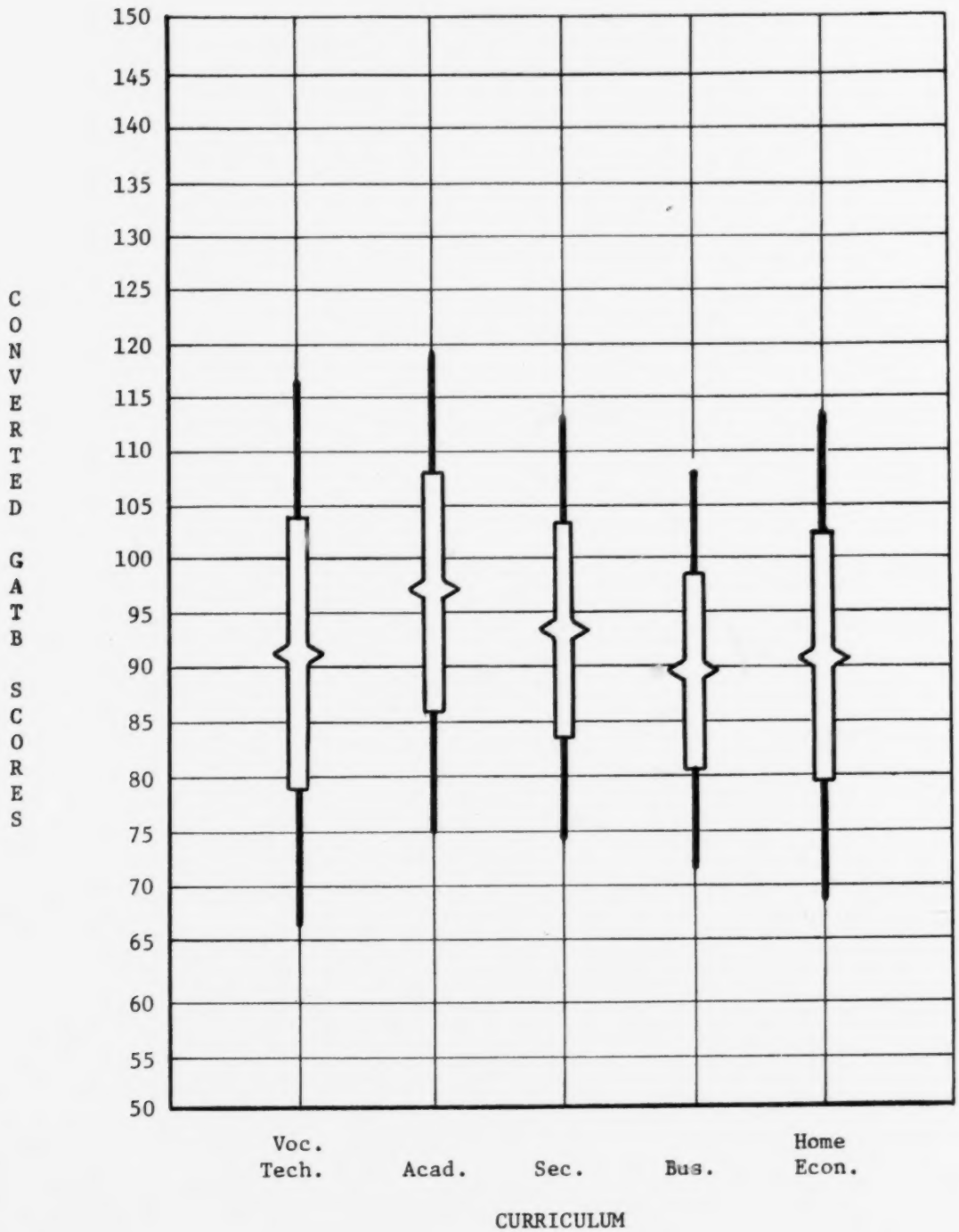

Figure 2: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Verbal

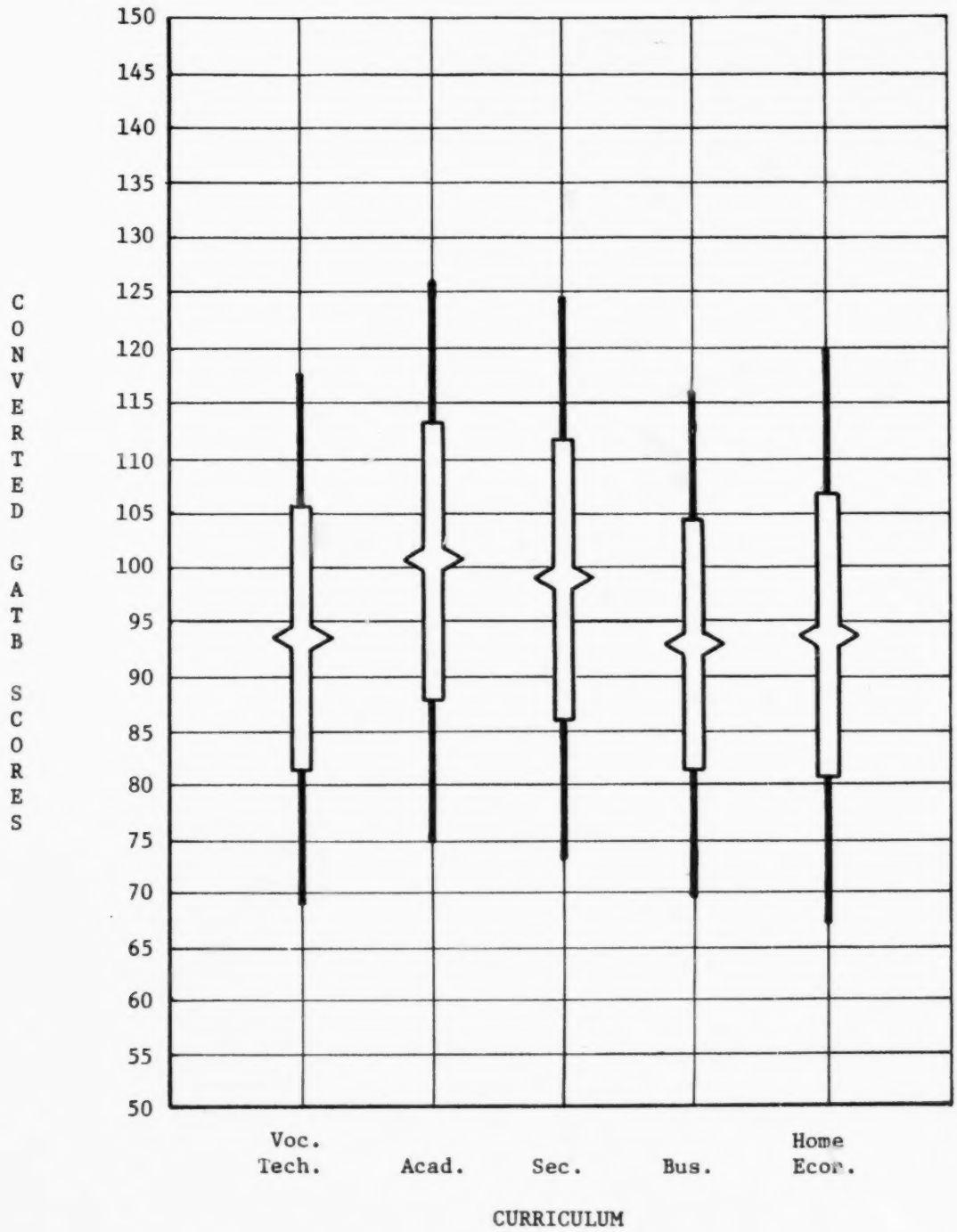

Figure 3: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Numerical

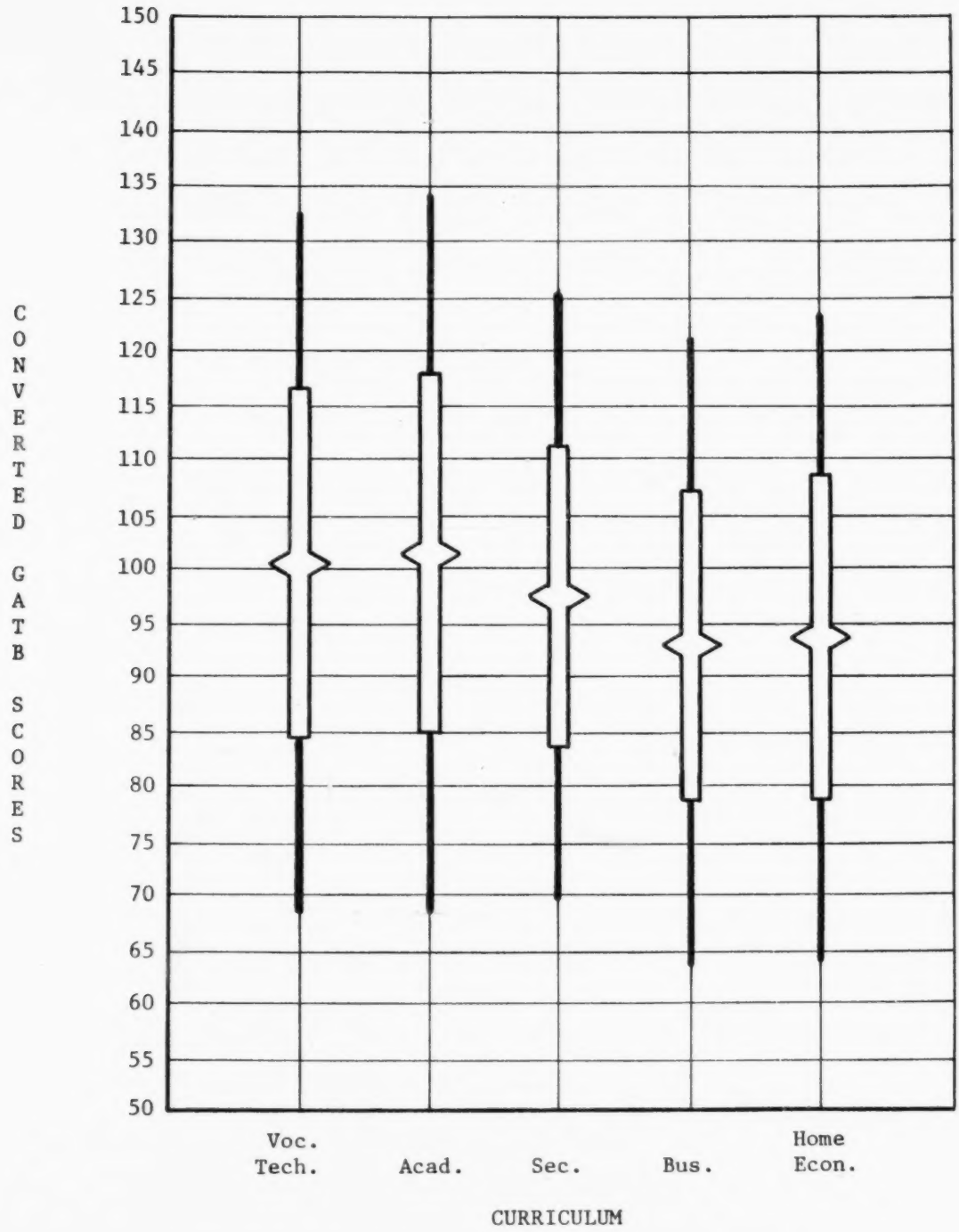

Figure 4: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Spatial

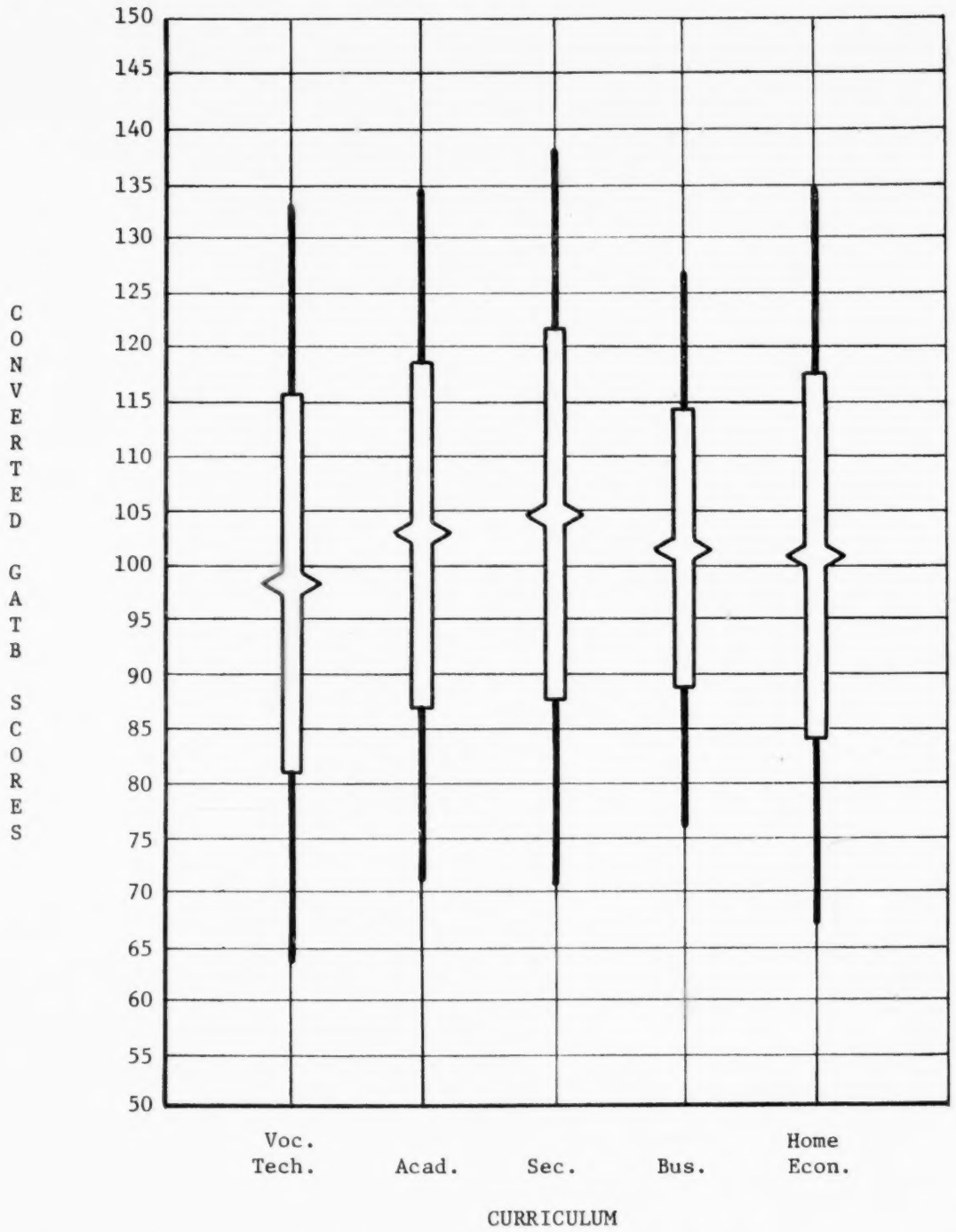

Figure 5: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Form Perception

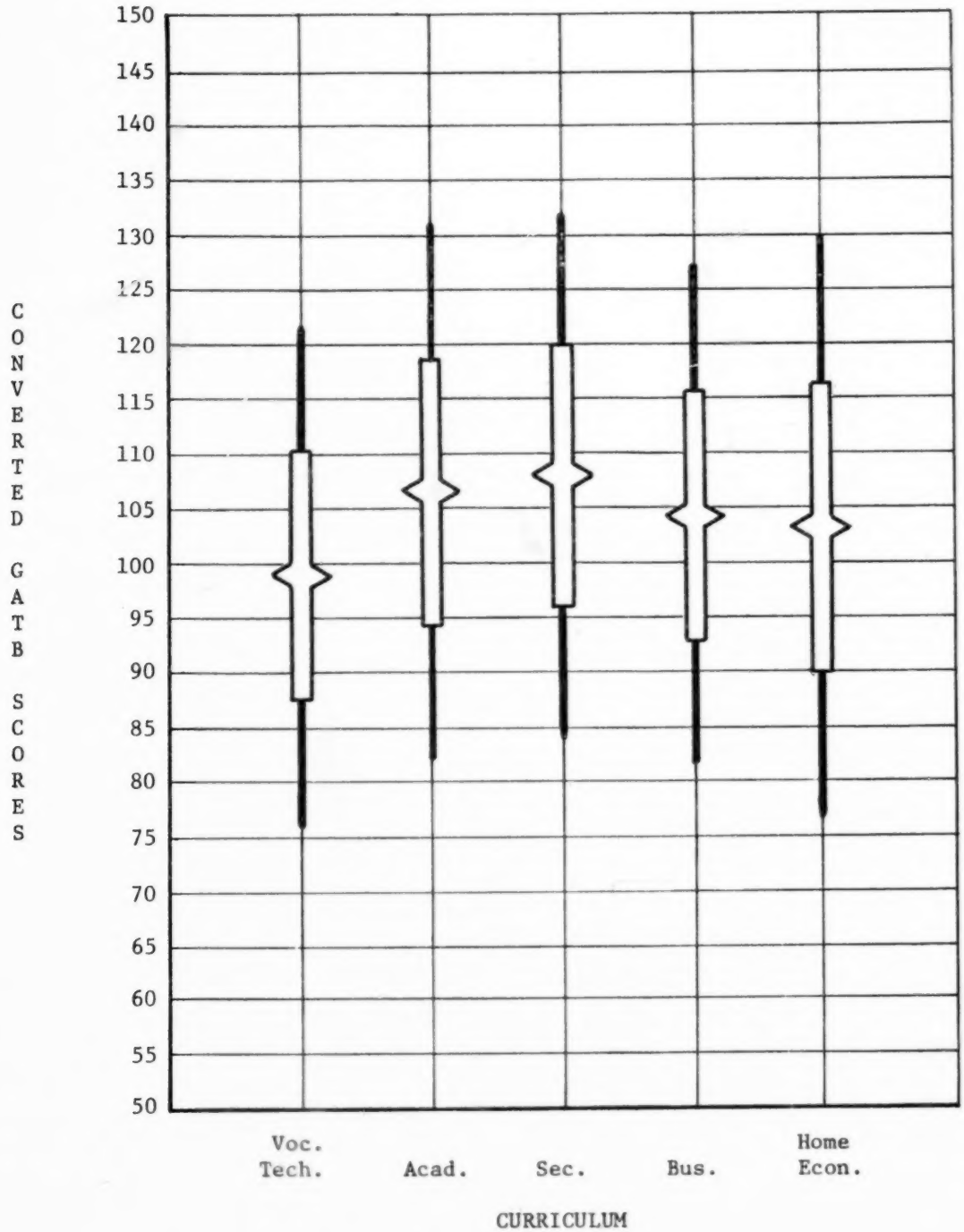

Figure 6: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Clerical

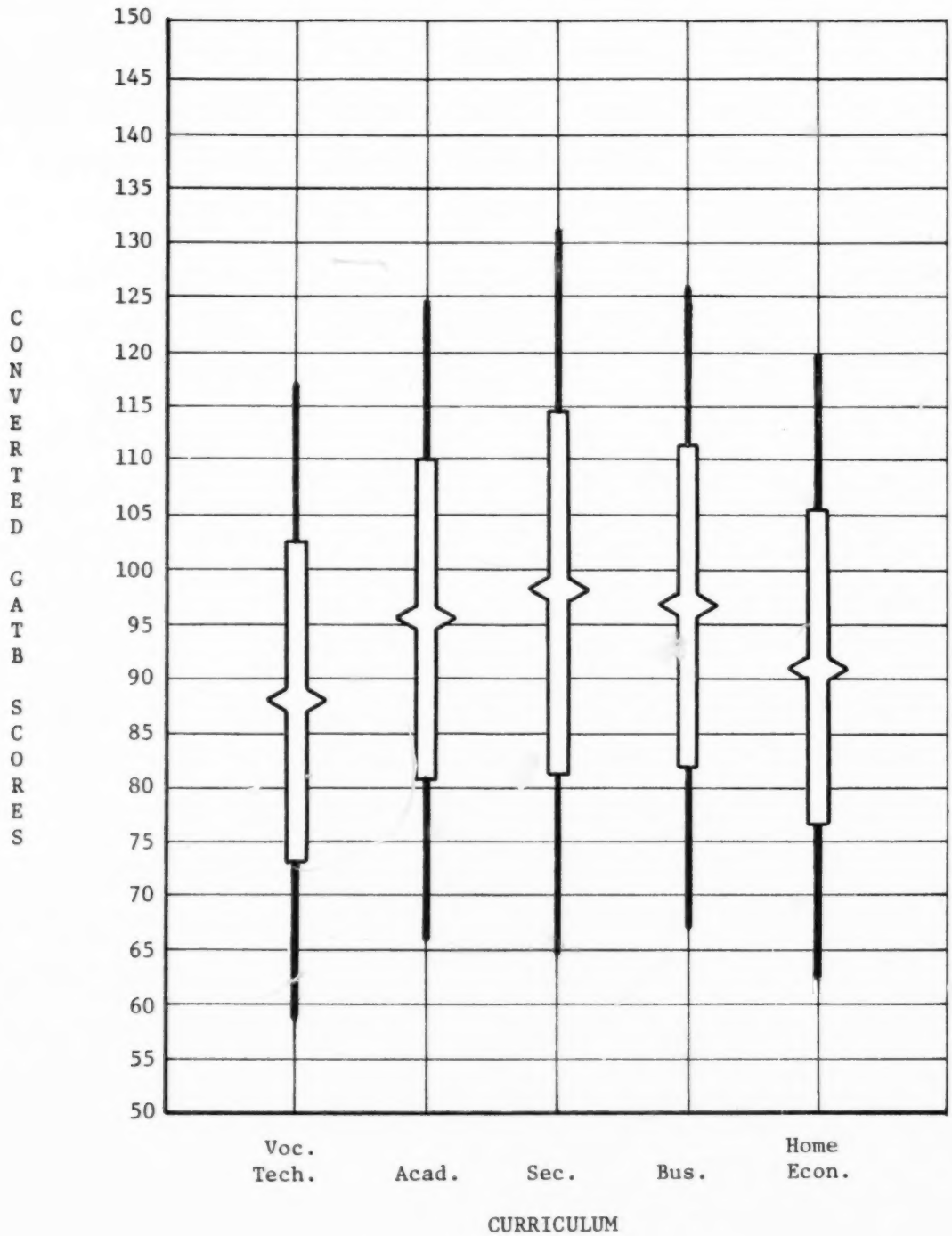

Figure 7: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Motor Coordination

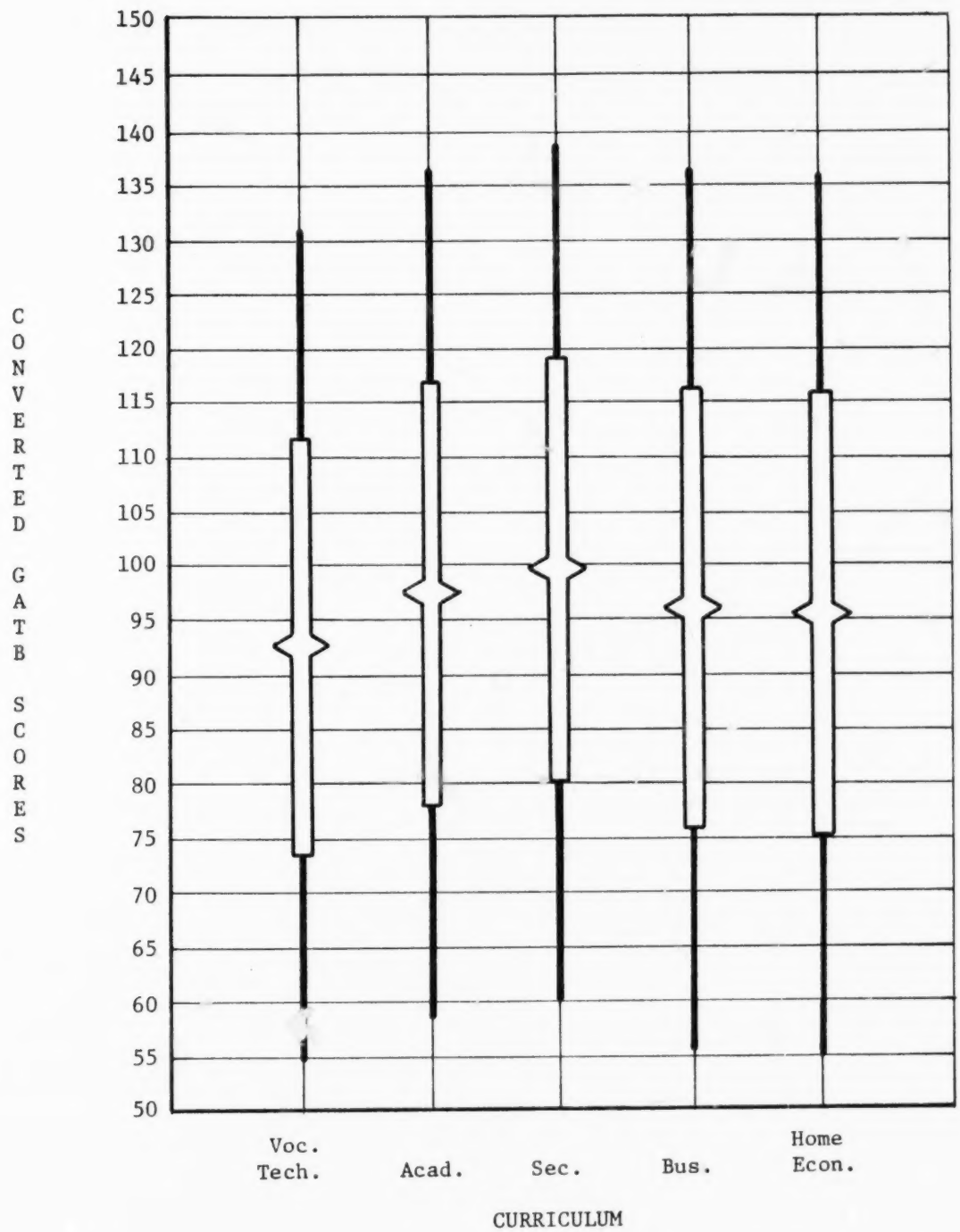

Figure 8: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Finger Dexterity

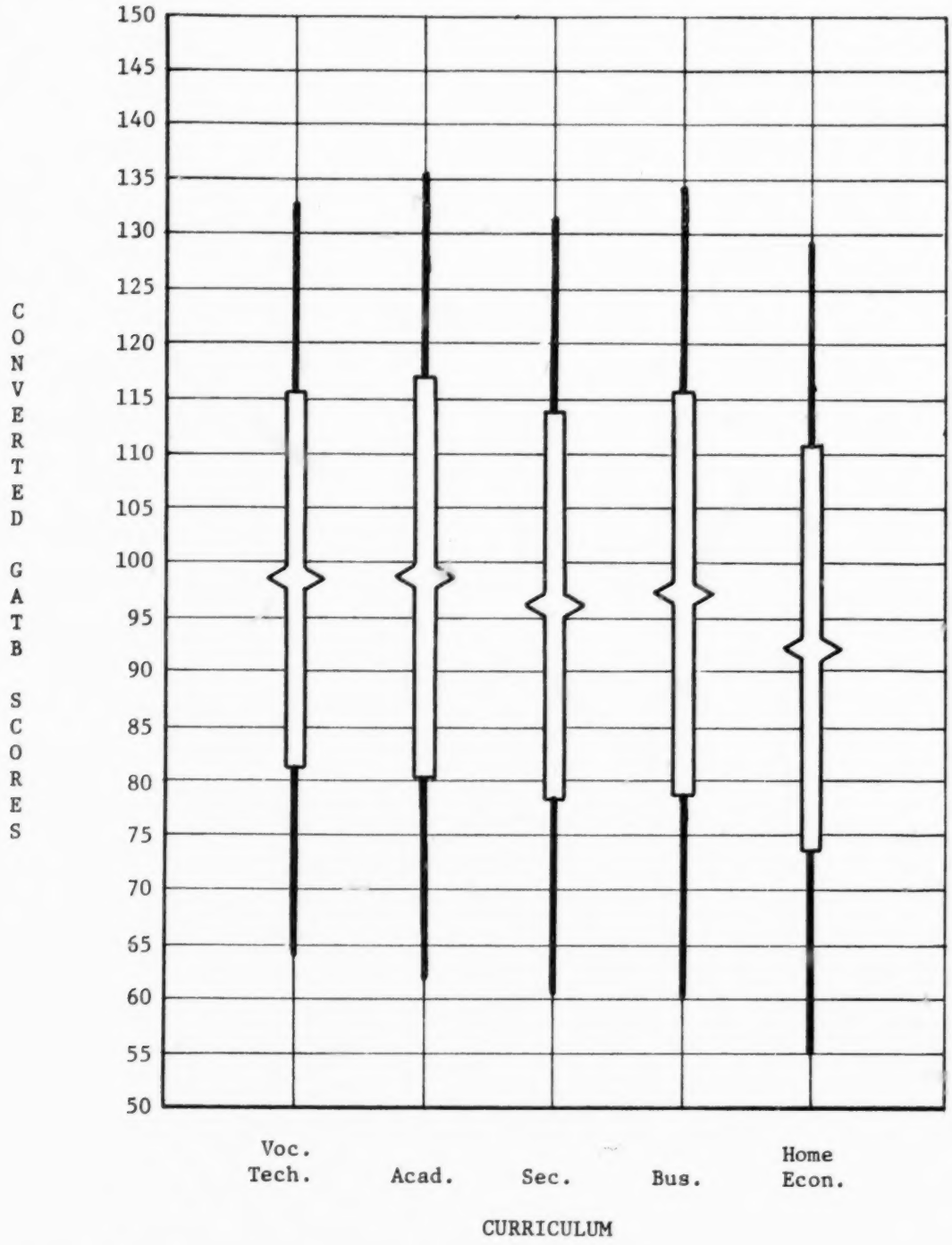

Figure 9: Curriculum Profile of Means and Standard Deviations for GATB Aptitude-Manual Dexterity

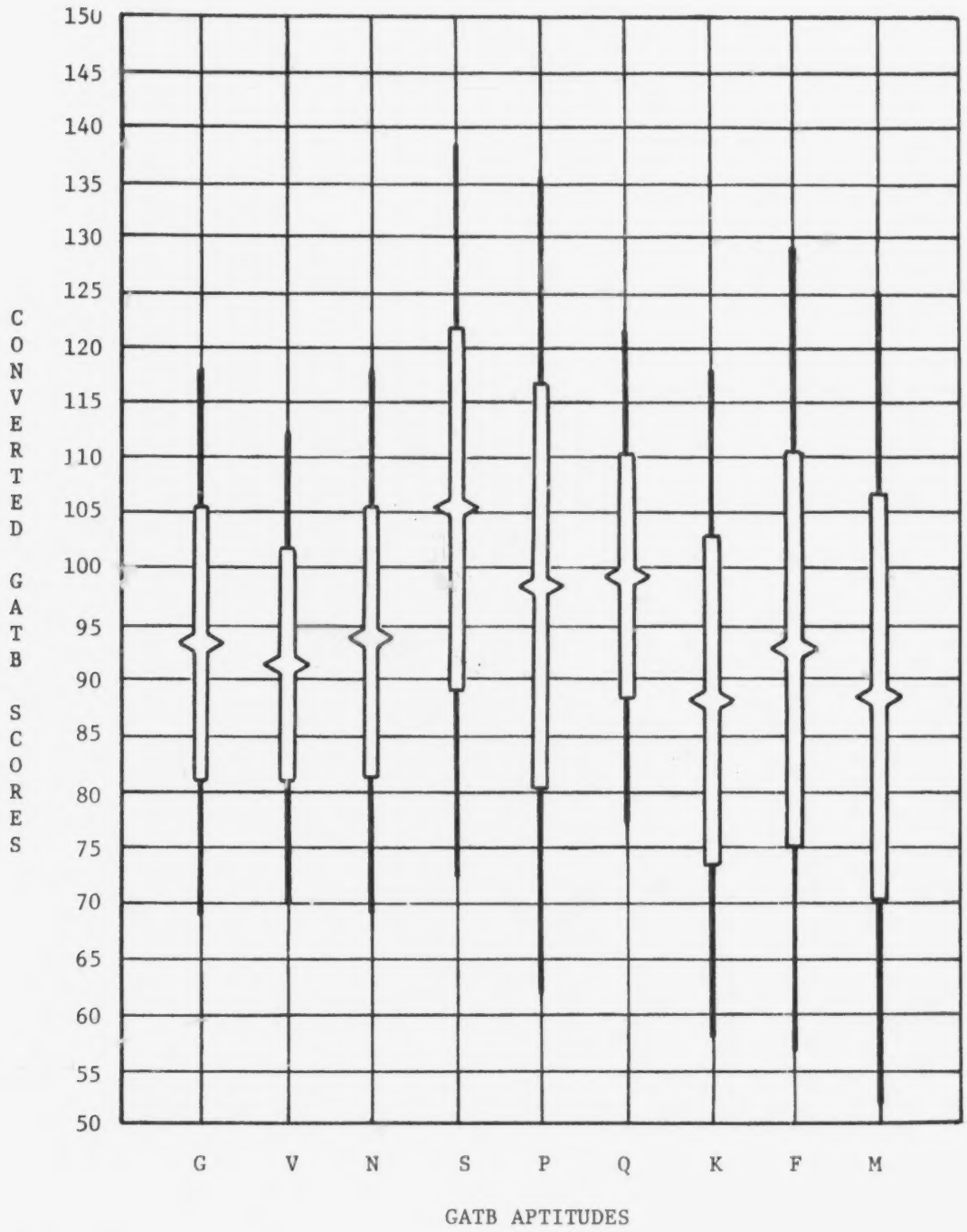

Figure 10: Profile of GATB Aptitudes for the Vocational Technical Sample

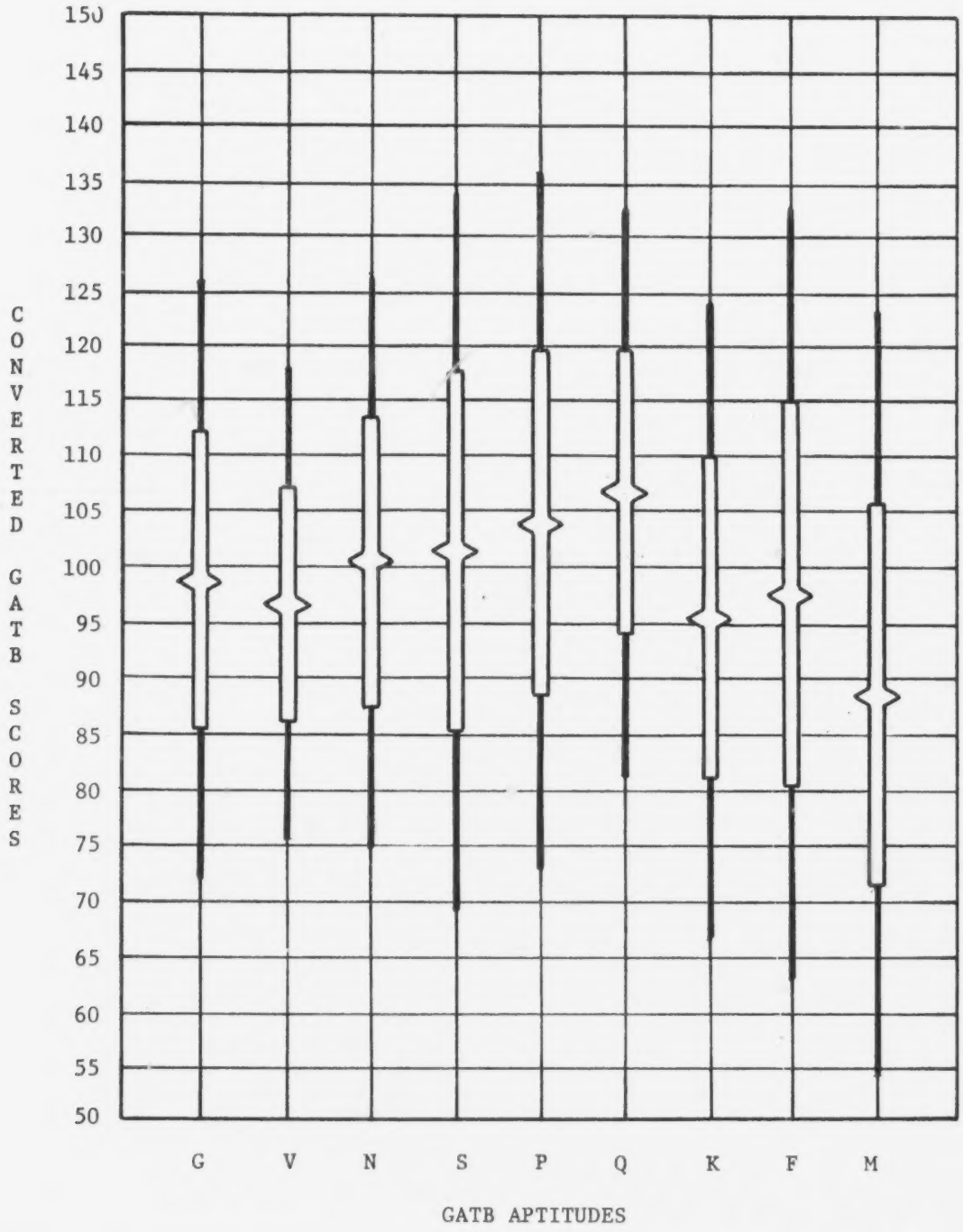

Figure 11: Profile of GATB Aptitudes for the Academic Sample

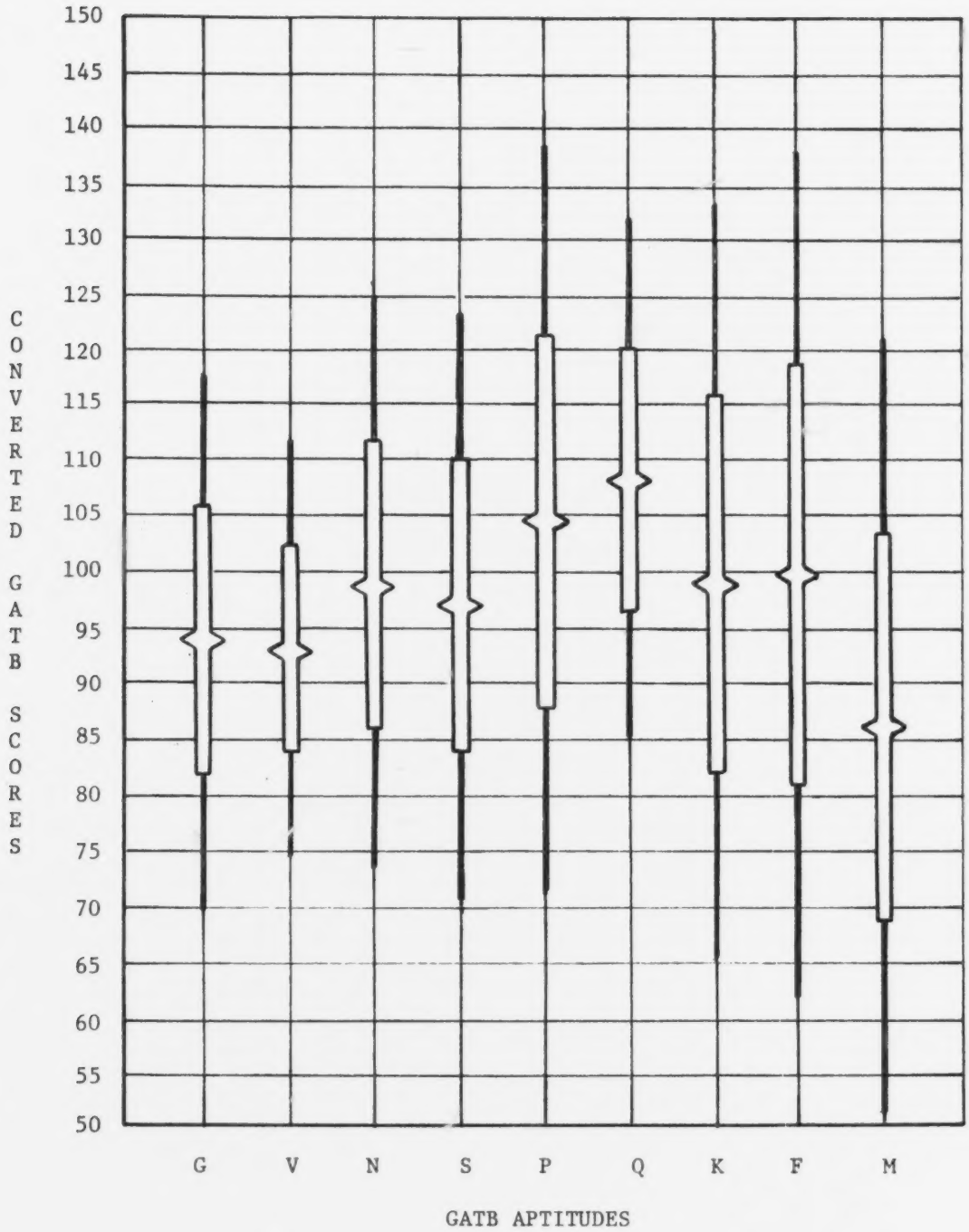

Figure 12: Profile of GATB Aptitudes for the Secretarial Sample

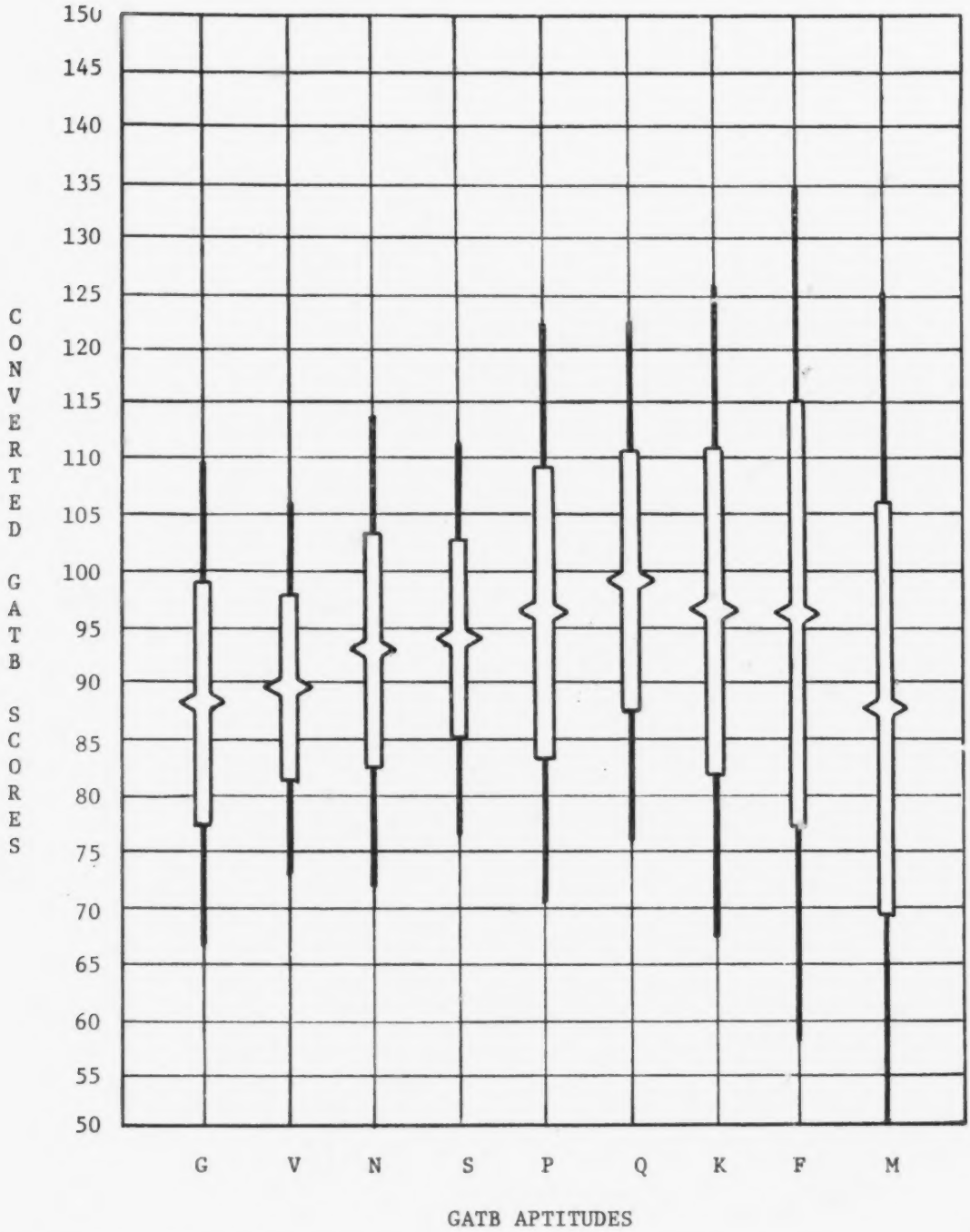

Figure 13: Profile of GATB Aptitudes for the Business Sample

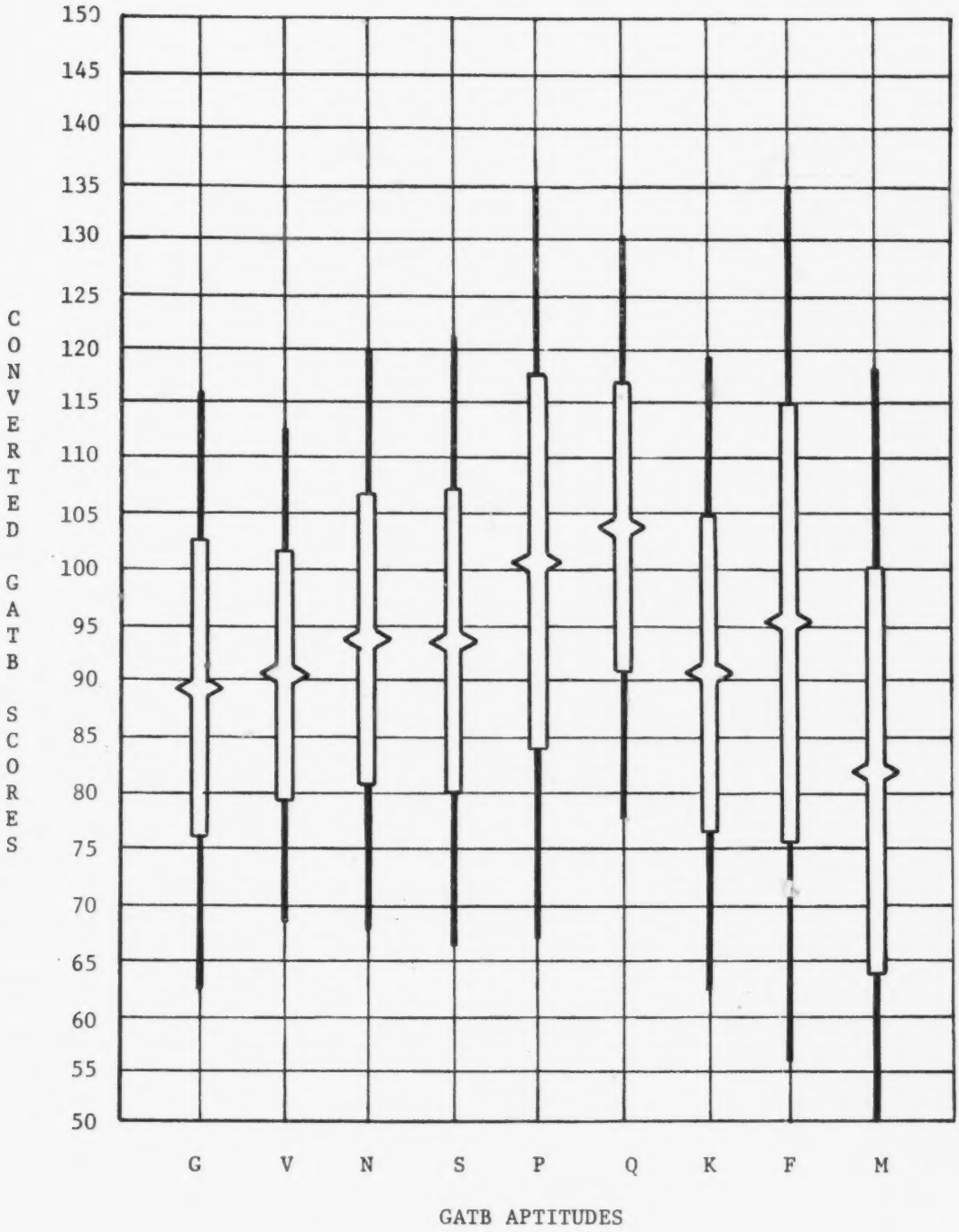

Figure 14: Profile of GATB Aptitudes for the Home Economics Sample

Table 2: Means and Standard Deviations of Occupational Values by Curriculum[a]

N = 1019

Values	Voc. Tech. N = 309	Acad. N = 417	Sec. N = 103	Bus. N = 105	Home Econ. N = 85	F Ratio	Probability[c]
Interest	18.02 (5.01)	20.11 (4.82)	20.12 (4.39)	19.72 (4.30)	19.62 (4.19)	9.68	0.001
Advancement	14.37 (5.01)	13.26 (5.34)	13.53 (5.02)	13.40 (4.78)	12.65 (4.93)	2.98	0.001
Salary	14.97 (6.57)	11.73 (7.16)	10.84 (6.29)	13.05 (6.02)	11.77 (6.36)	13.27	0.001
Prestige[b]	11.05 (4.84)	12.33 (5.56)	12.58 (4.24)	11.74 (4.47)	12.22 (4.57)	3.52	0.007
Personal Goal	17.08 (4.36)	19.20 (4.72)	18.68 (4.72)	18.50 (4.37)	19.29 (4.26)	10.71	0.001
Preparation and Ability	17.06 (4.41)	16.97 (4.67)	17.46 (4.75)	17.70 (4.46)	18.06 (4.73)	1.48	0.207
Security	12.74 (5.29)	11.86 (5.62)	12.11 (5.82)	11.25 (4.66)	12.09 (5.20)	1.92	0.105

[a]The standard deviation values are in parentheses.

[b]The chi-square values from a Bartlett's test for homogeneity of variance does not support the hypothesis of equal population variances at the .05 significance level.

[c]The probability that the obtained F Ratio occurred by chance.

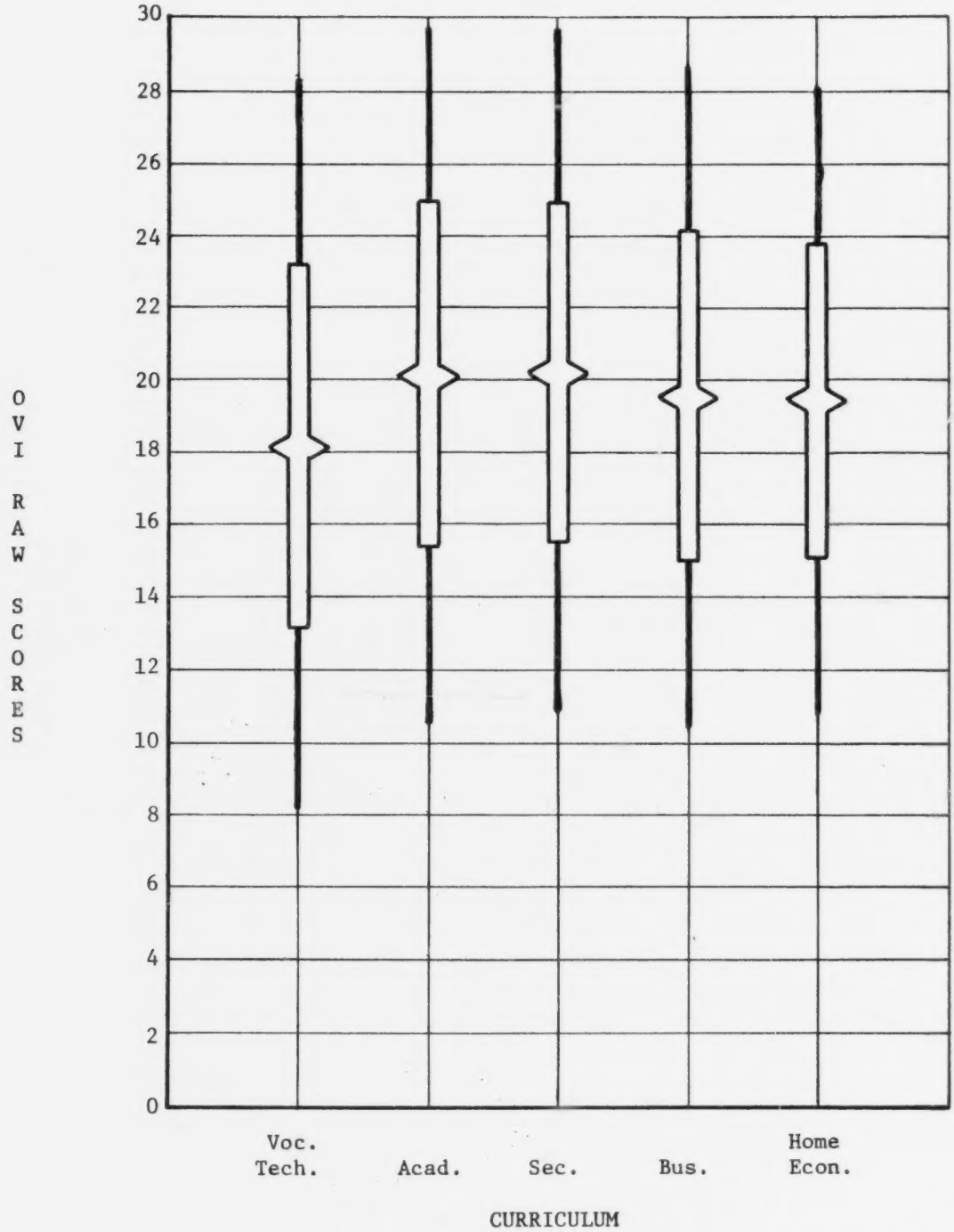

Figure 15: Curriculum Profile of Means and Standard Deviations for OVI Value-Interest

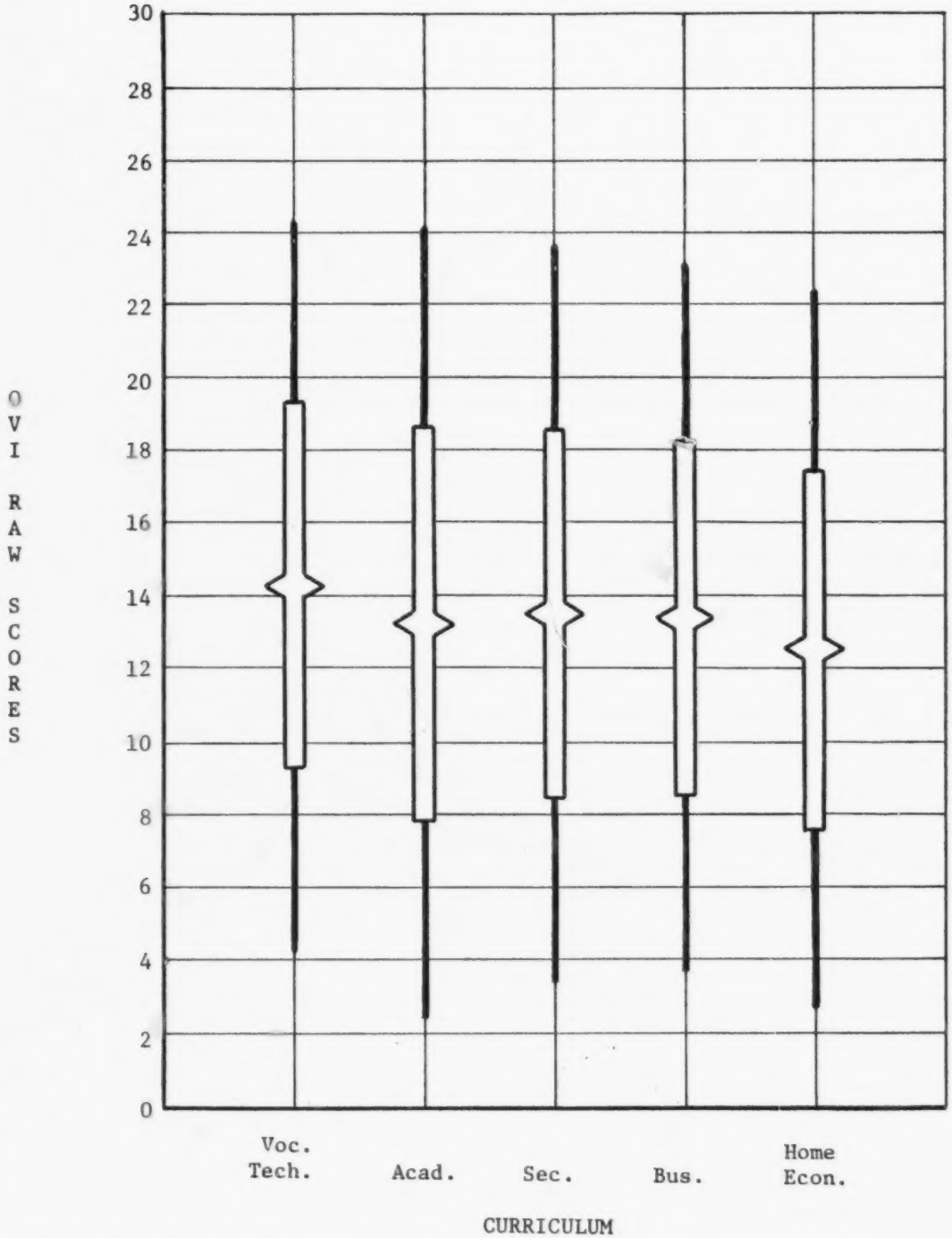

Figure 16: Curriculum Profile of Means and Standard Deviations for OVI Value-Advancement

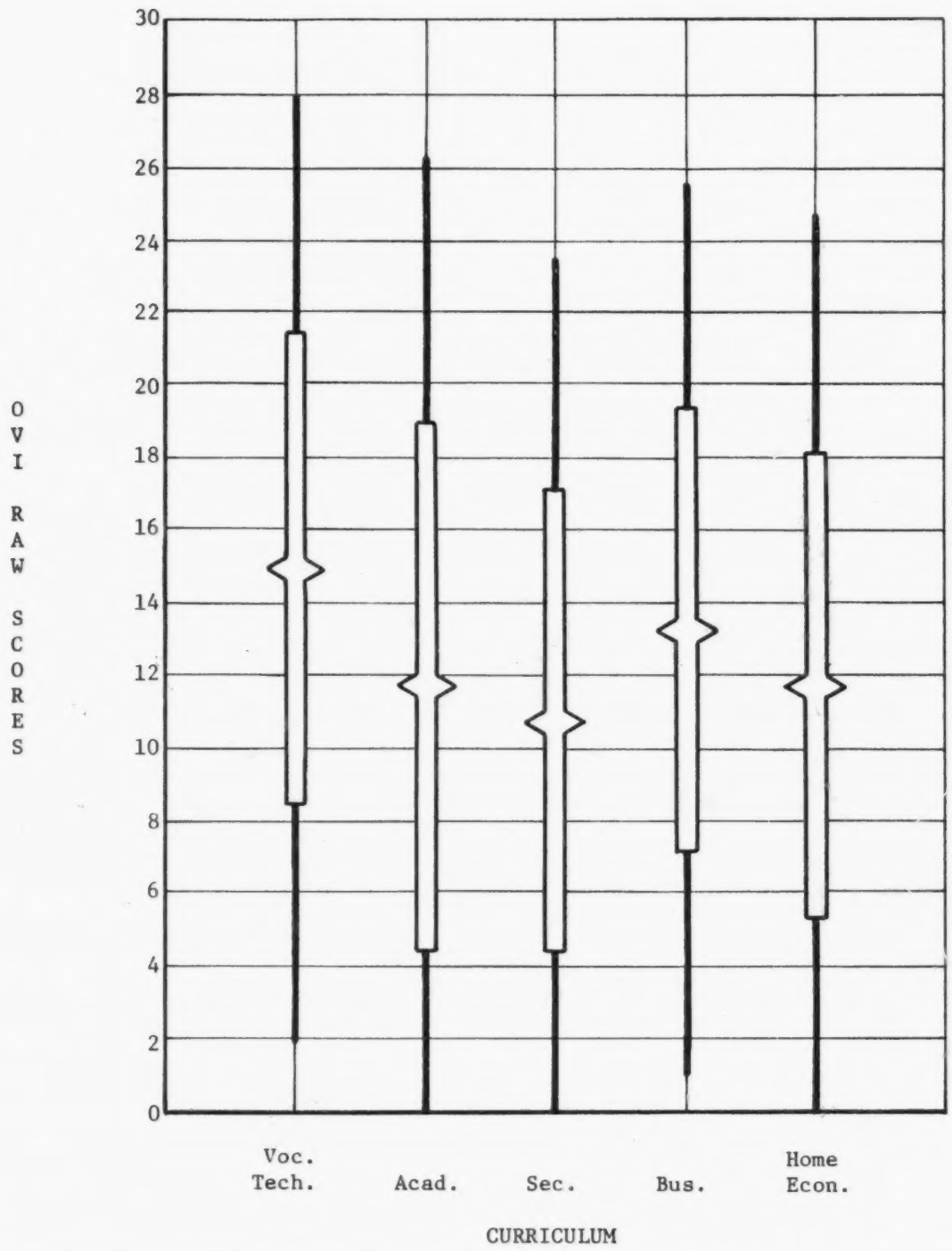

Figure 17: Curriculum Profile of Means and Standard Deviations for OVI Value-Salary

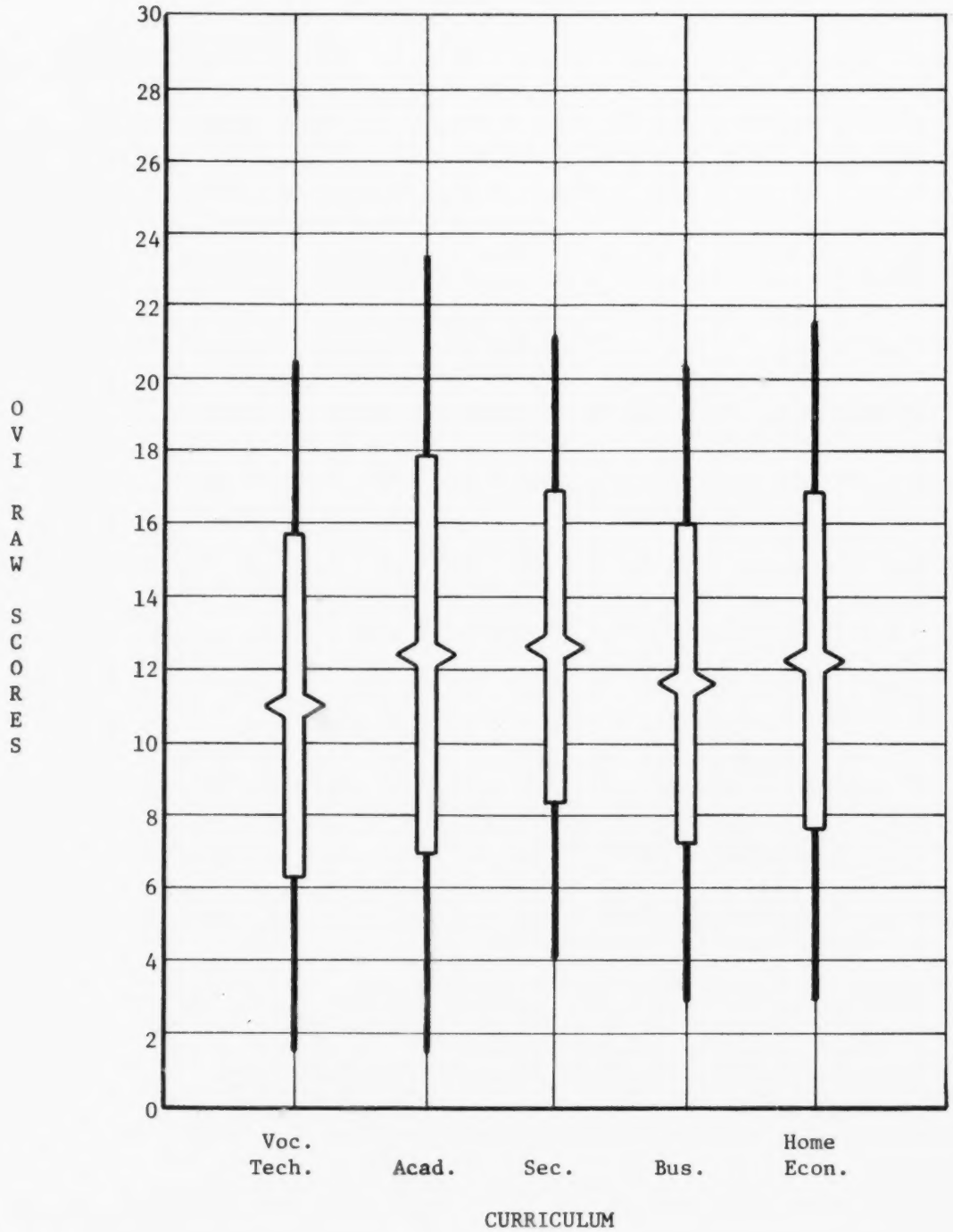

Figure 18: Curriculum Profile of Means and Standard Deviations for OVI Value-Prestige

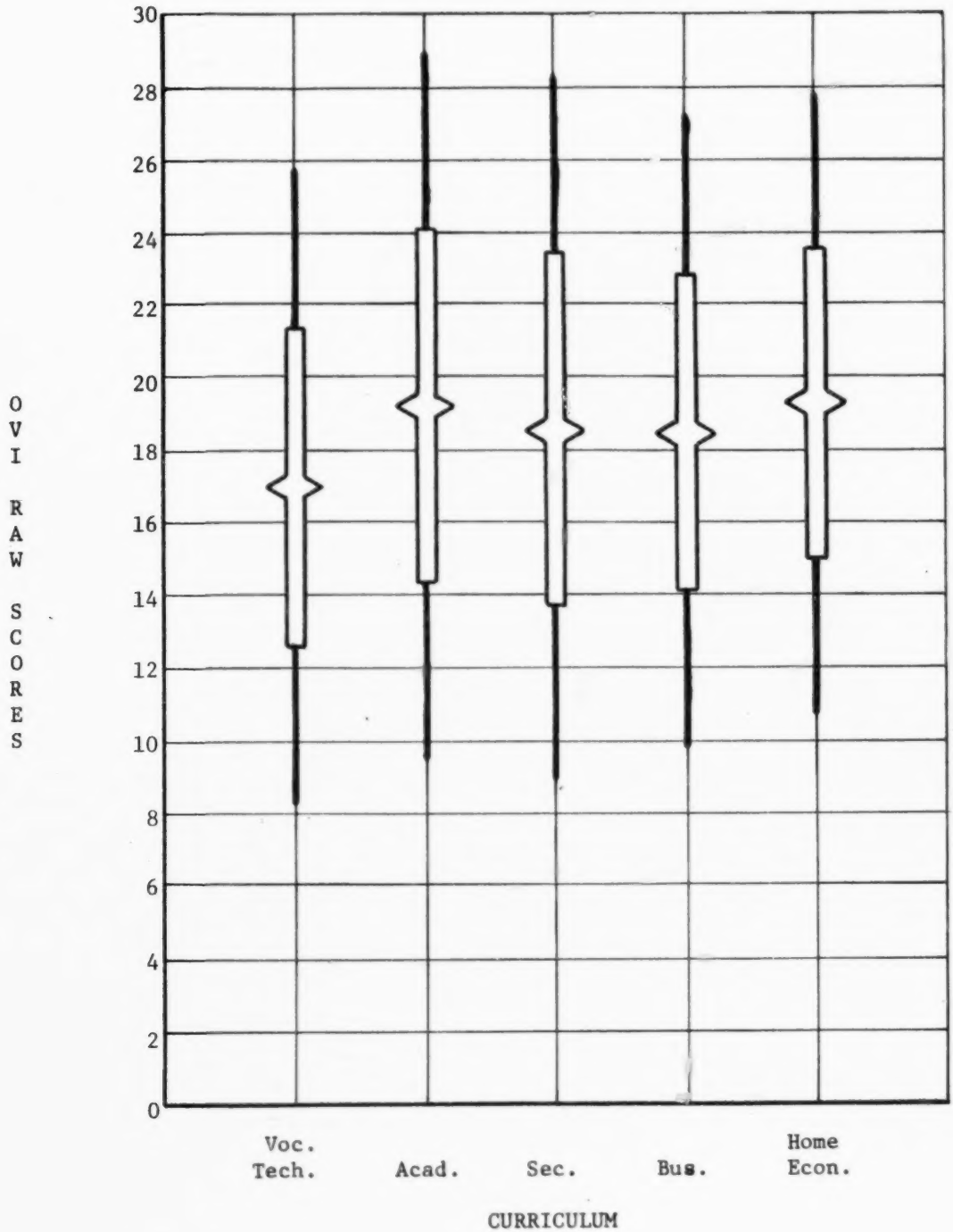

Figure 19: Curriculum Profile of Means and Standard Deviations for OVI Value-Personal Goal

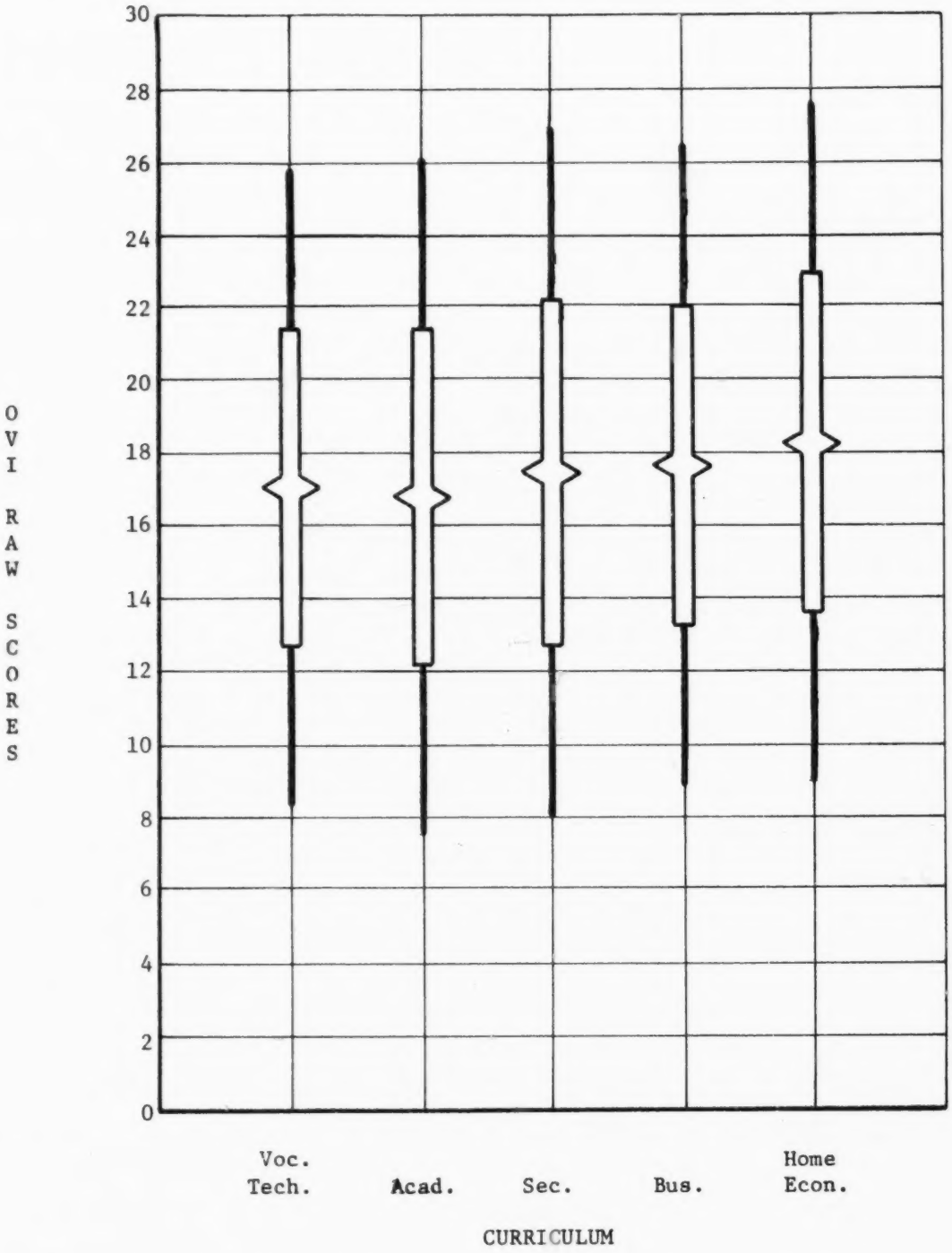

Figure 20: Curriculum Profile of Means and Standard Deviations for OVI Value-Preparation and Ability

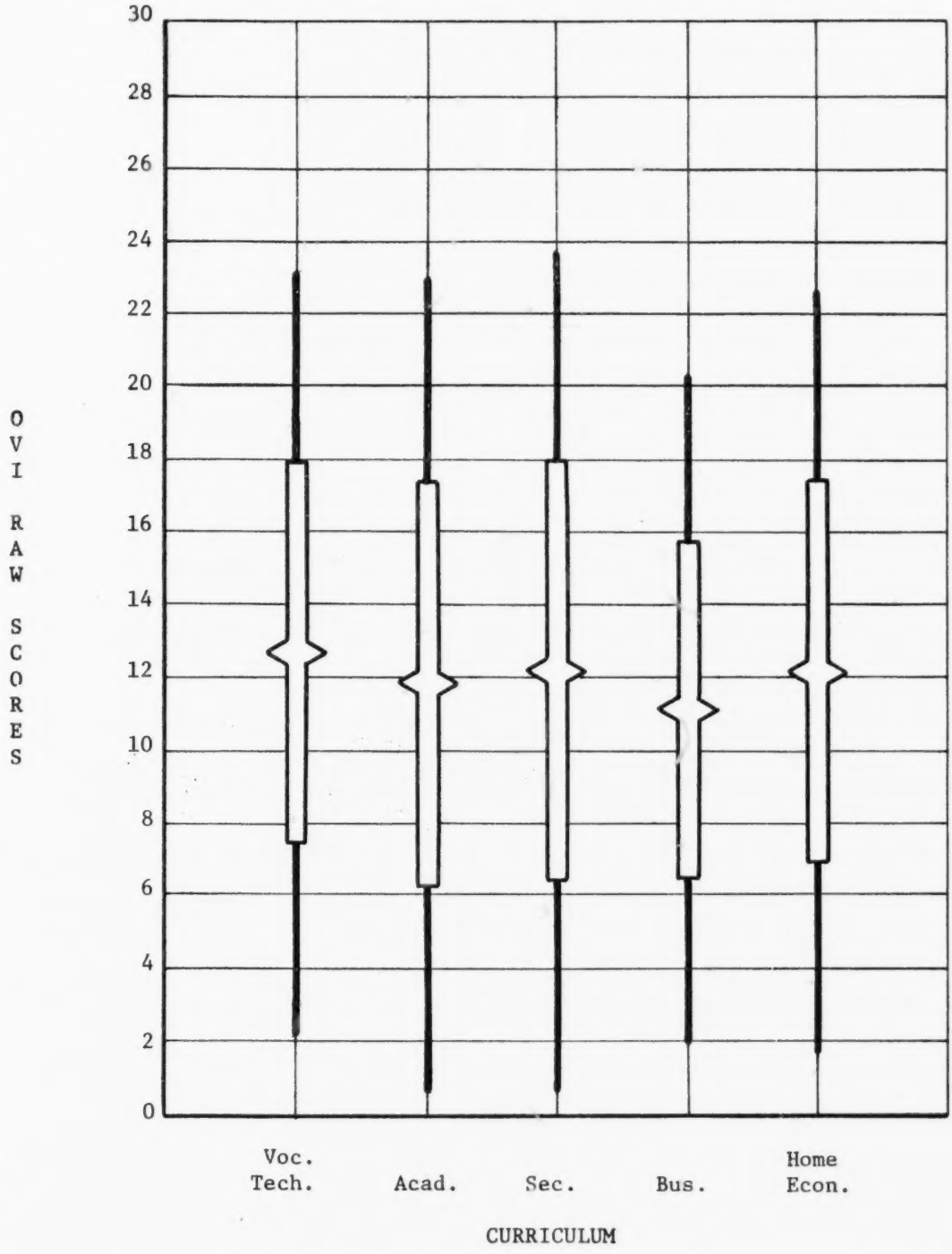

Figure 21: Curriculum Profile of Means and Standard Deviations for OVI Value-Security

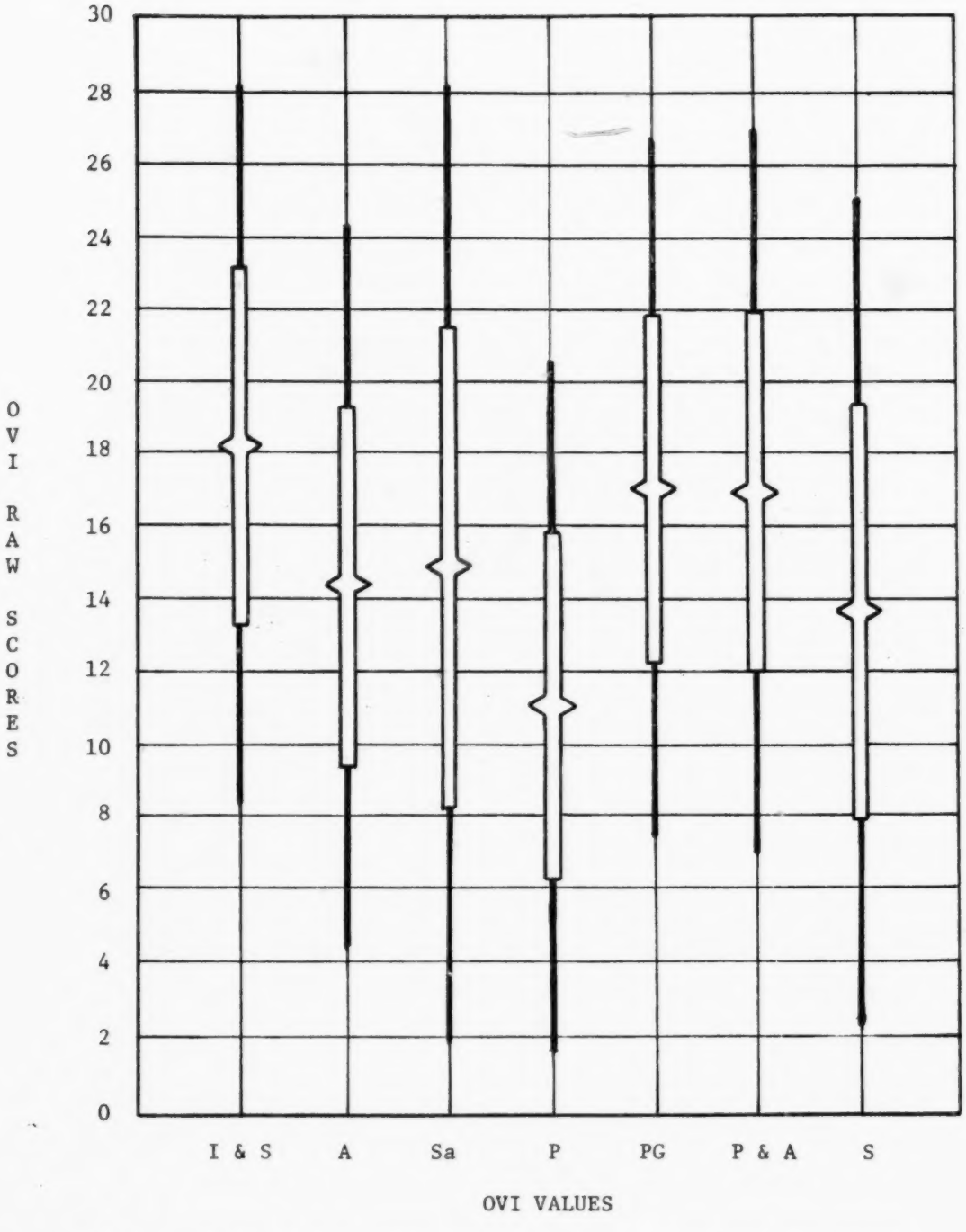

Figure 22: Profile of OVI Value Scores for the Vocational Technical Sample

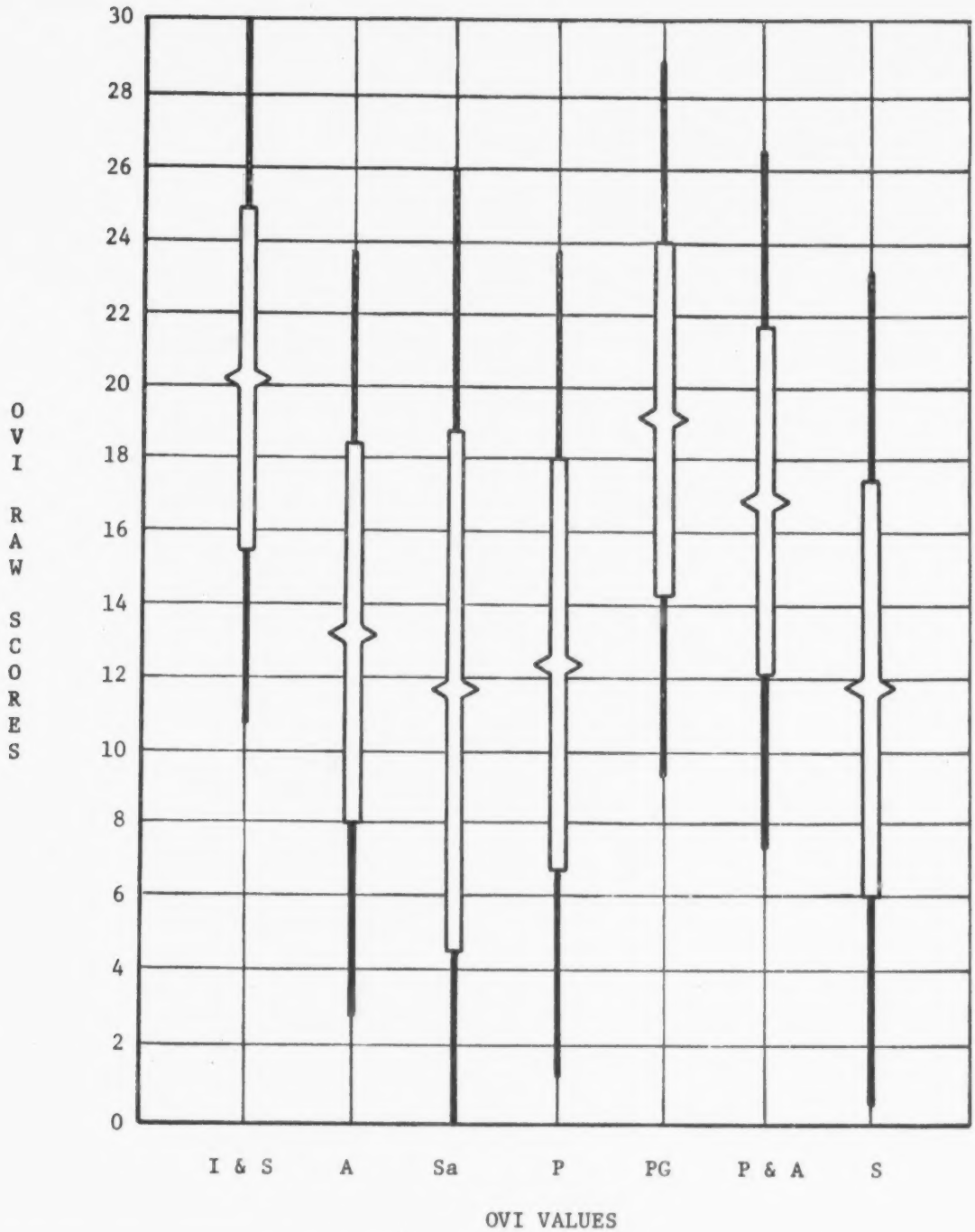

Figure 23: Profile of OVI Value Scores for the Academic Sample

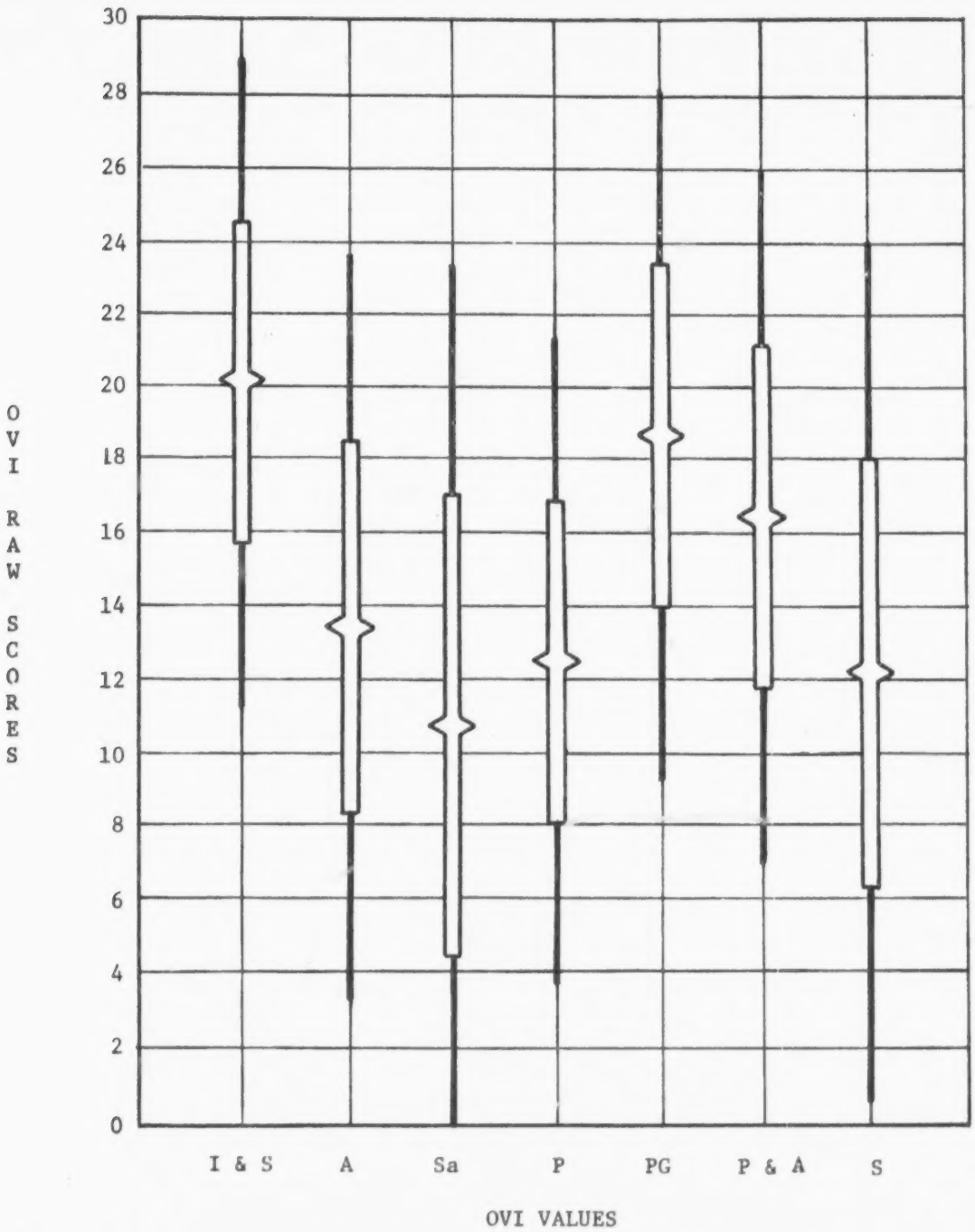

Figure 24: Profile of OVI Value Scores for the Secretarial Sample

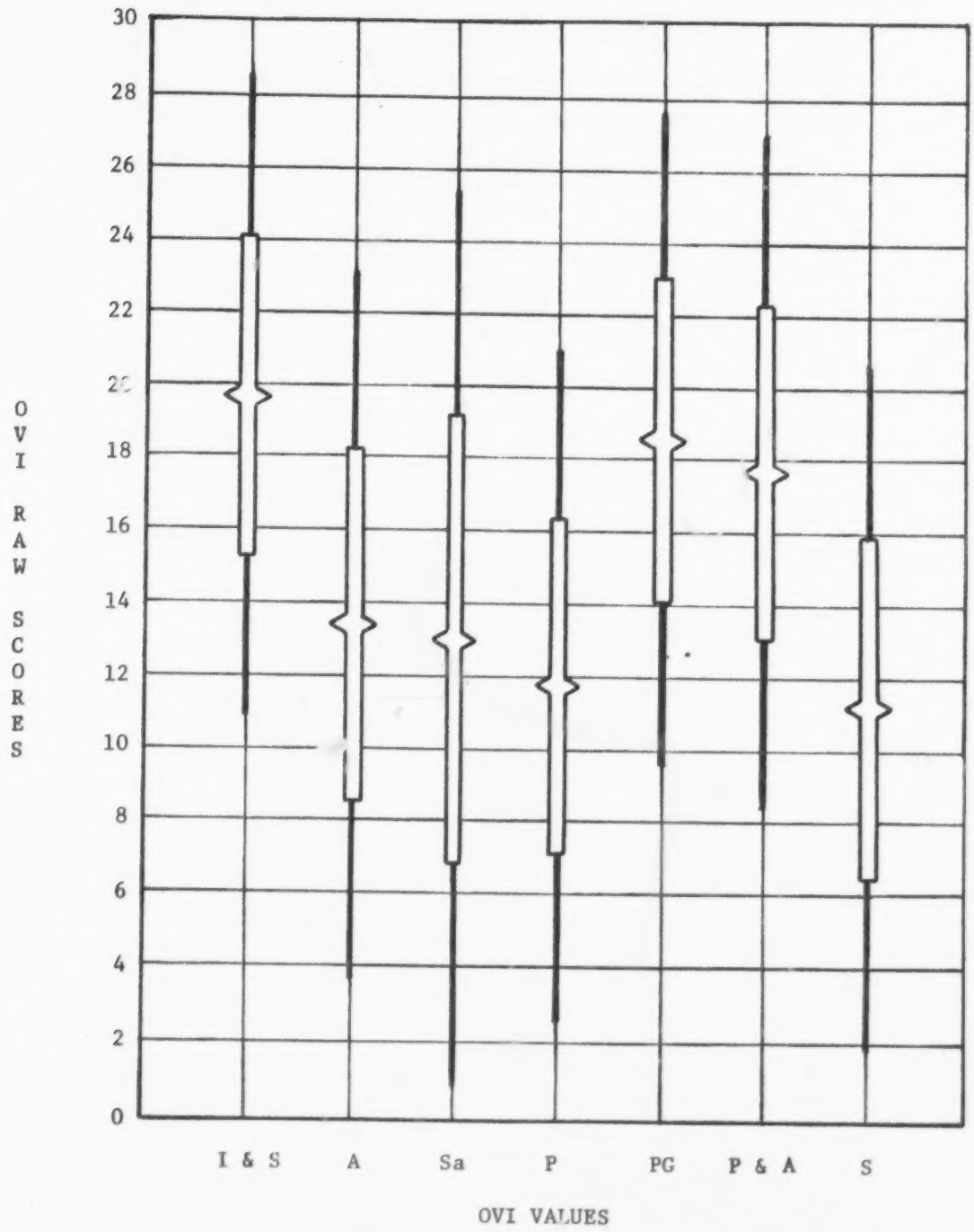

Figure 25: Profile of OVI Value Scores for the Business Sample

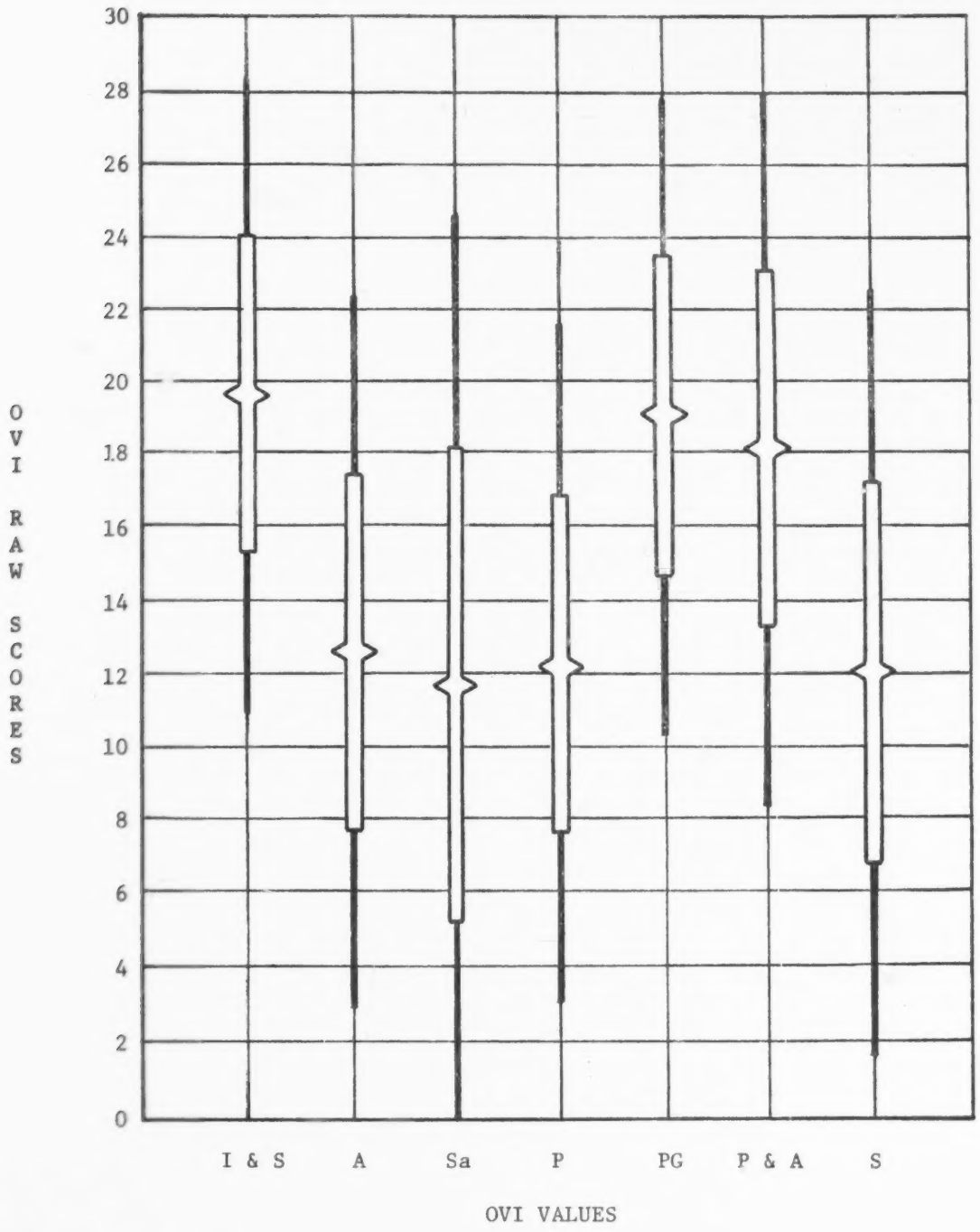

Figure 26: Profile of OVI Value Scores for the Home Economics Sample

Table 3: Means and Standard Deviations of Junior High School Course Averages by Curriculum[a]
N = 1016[b]

Subject	Voc. Tech. N = 307	Acad. N = 419	Sec. N = 102	Bus. N = 105	Home Econ. N = 83	F Ratio	Probability[d]
Math[c]	3.02 (.80)	3.51 (.75)	3.35 (.60)	2.99 (.62)	3.09 (.79)	24.48	0.001
Science[c]	3.16 (.72)	3.54 (.66)	3.32 (.57)	2.95 (.58)	2.94 (.71)	30.96	0.001
English[c]	2.92 (.75)	3.54 (.71)	3.51 (.59)	3.04 (.65)	3.15 (.83)	40.35	0.001
Social Studies[c]	2.97 (.73)	3.54 (.73)	3.41 (.60)	2.92 (.61)	2.96 (.72)	40.02	0.001
Shop	3.35 (.53)	3.54 (.52)	3.47 (.55)	3.19 (.49)	3.18 (.62)	15.53	0.001
Language	2.72 (.98)	3.25 (1.02)	3.19 (.95)	3.00 (1.11)	3.25 (1.25)		
Overall Gr. Pt. Ave.	3.04 (.57)	3.49 (.61)	3.38 (.49)	3.00 (.48)	3.05 (.66)	36.04	0.001

[a]The standard deviation values are in parentheses.

[b]The N's for Shop and Language are 961 and 489 due to students selecting different electives.

[c]The chi-square value from a Bartlett's test for homogeneity of variance does not support the hypothesis of equal population variances at the .05 significance level.

[d]The probability that the obtained F Ratio occurred by chance.

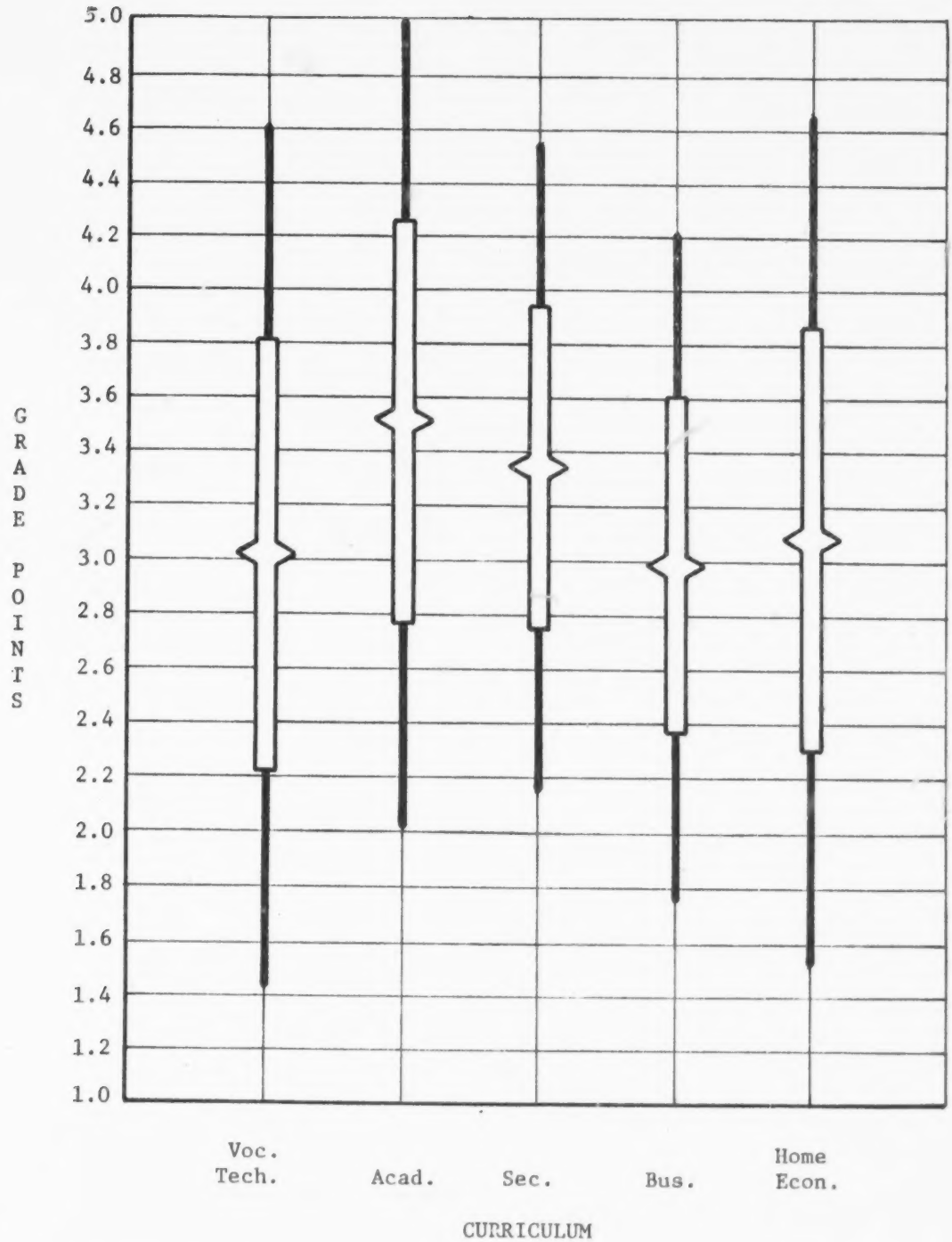

Figure 27: Curriculum Profile of Grade Point Averages and Standard Deviations for Junior High Math Courses

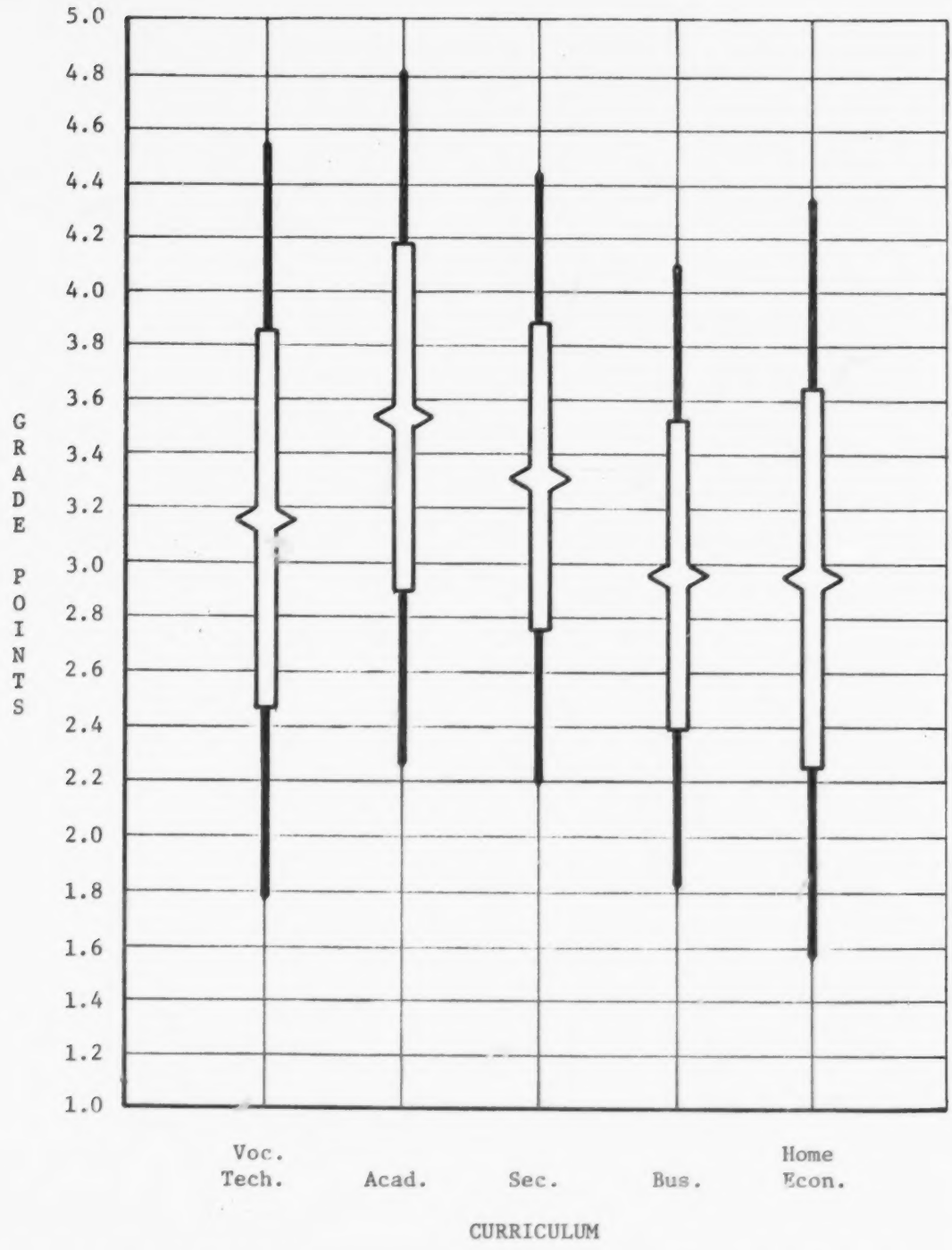

Figure 28: Curriculum Profile of Grade Point Averages and Standard Deviations for Junior High Science Courses

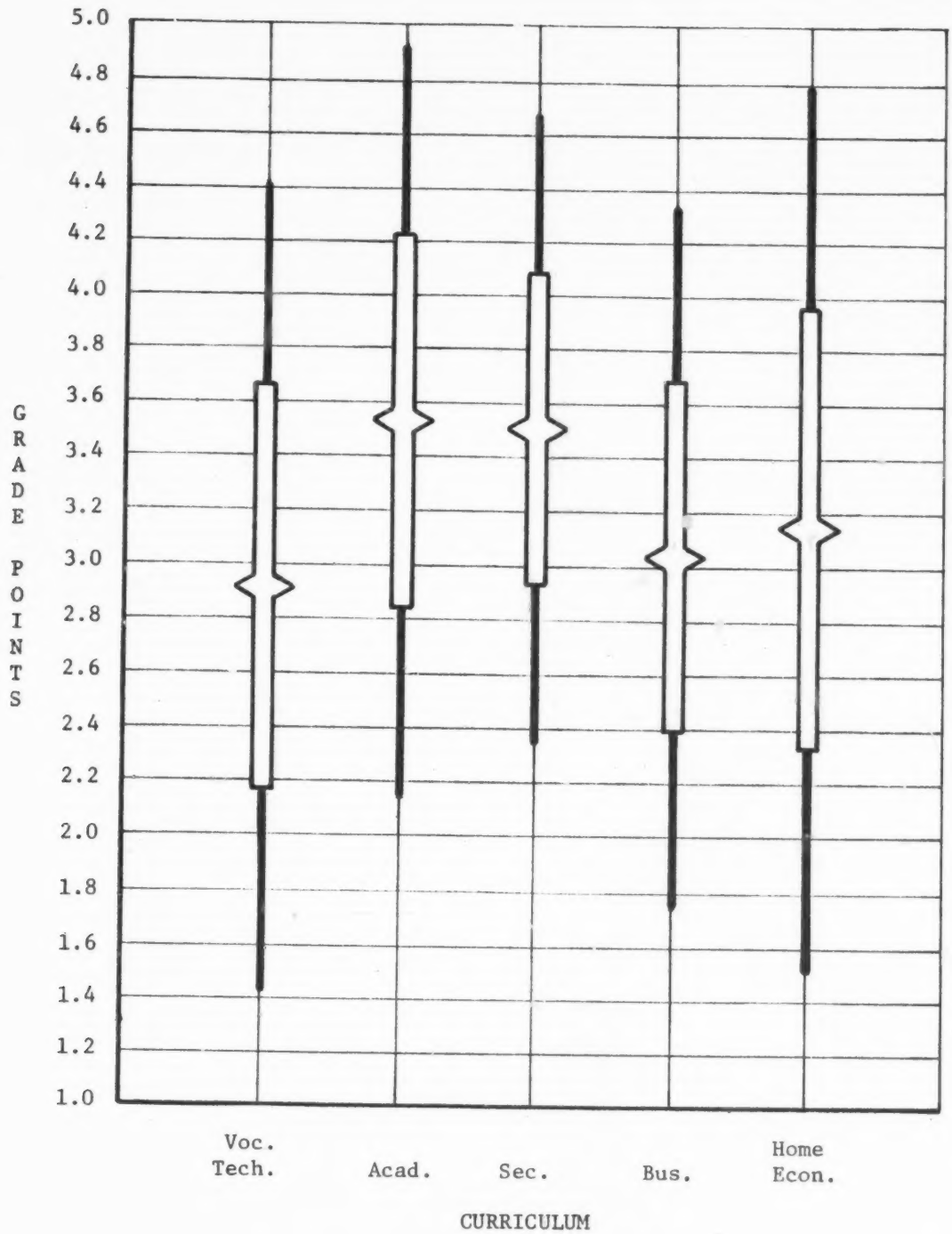

Figure 29: Curriculum Profile of Grade Point Averages and Standard Deviations for Junior High English Courses

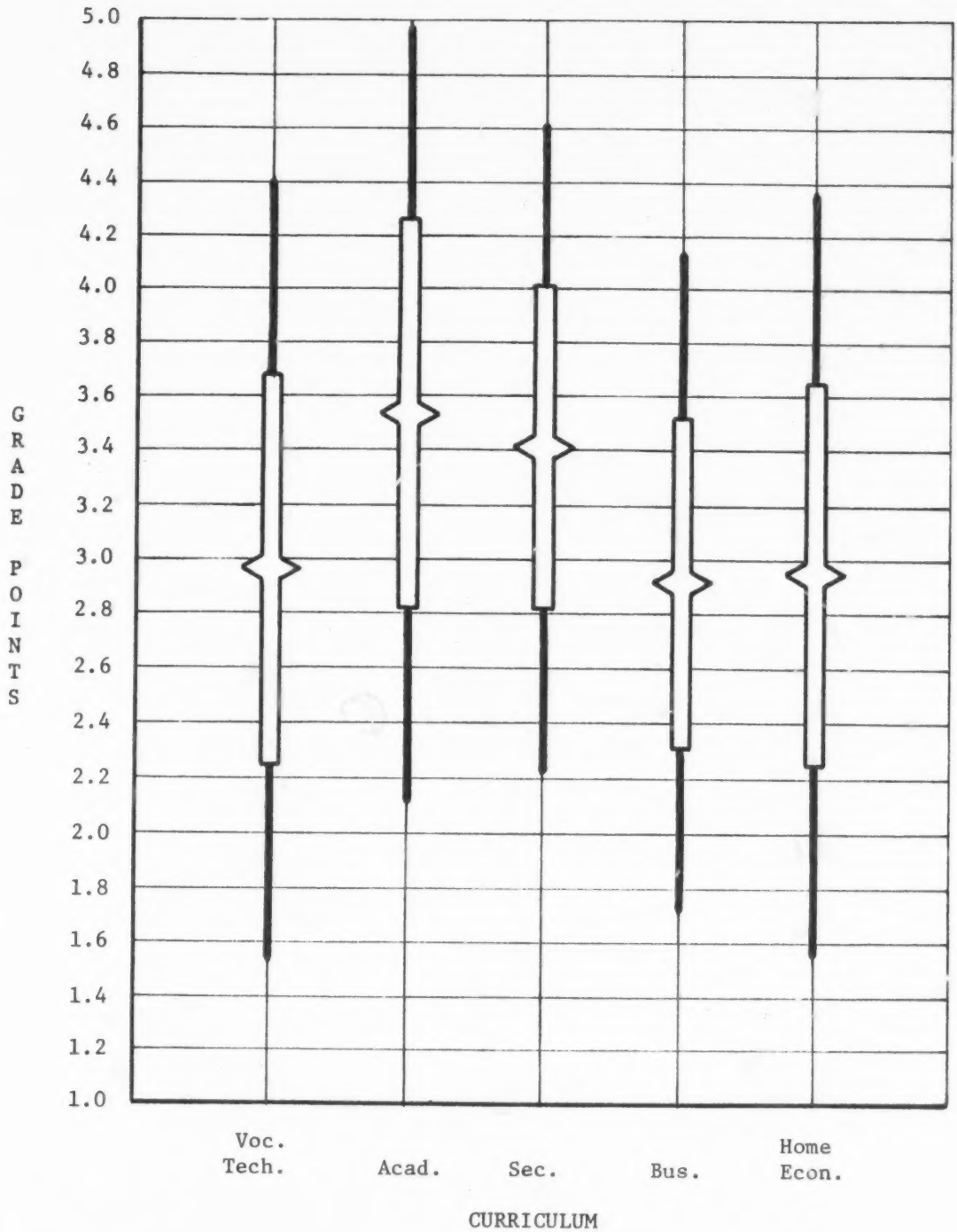

Figure 30: Curriculum Profile of Grade Point Averages and Standard Deviations for Junior High Social Studies Courses

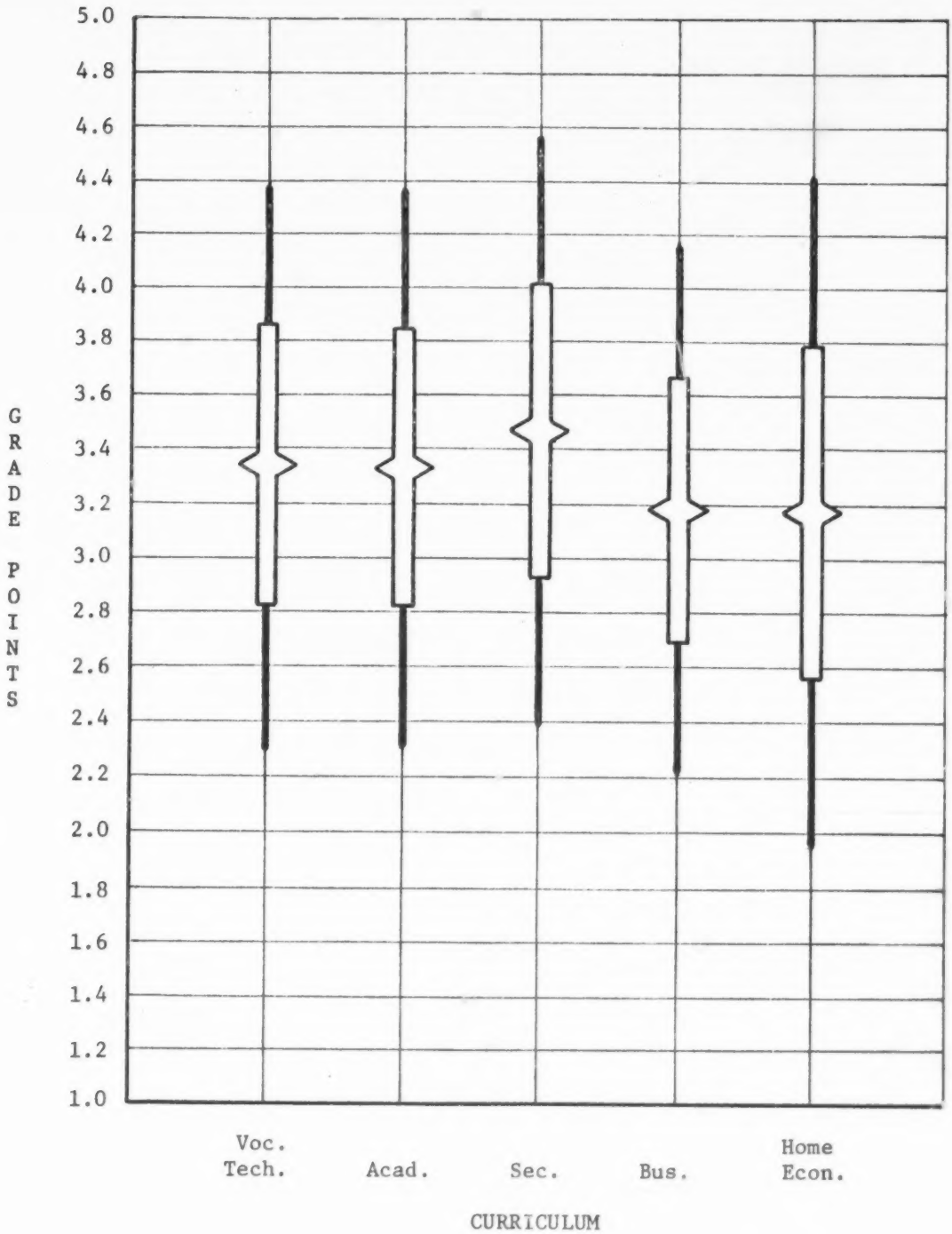

Figure 31: Curriculum Profile of Grade Point Averages and Standard Deviations for Junior High Shop Courses

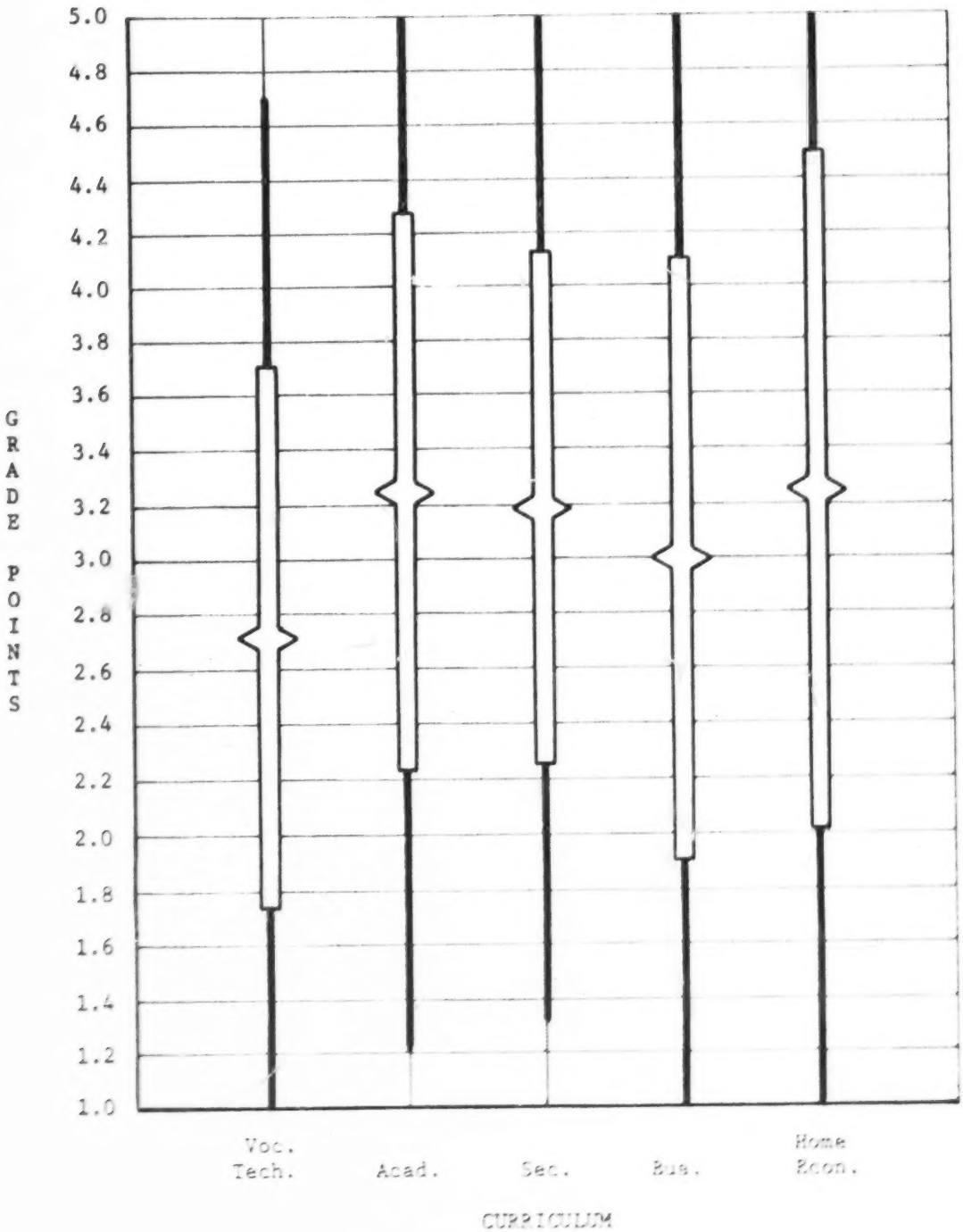

Figure 32: Curriculum Profile of Grade Point Averages and Standard Deviations for Junior High Language Courses

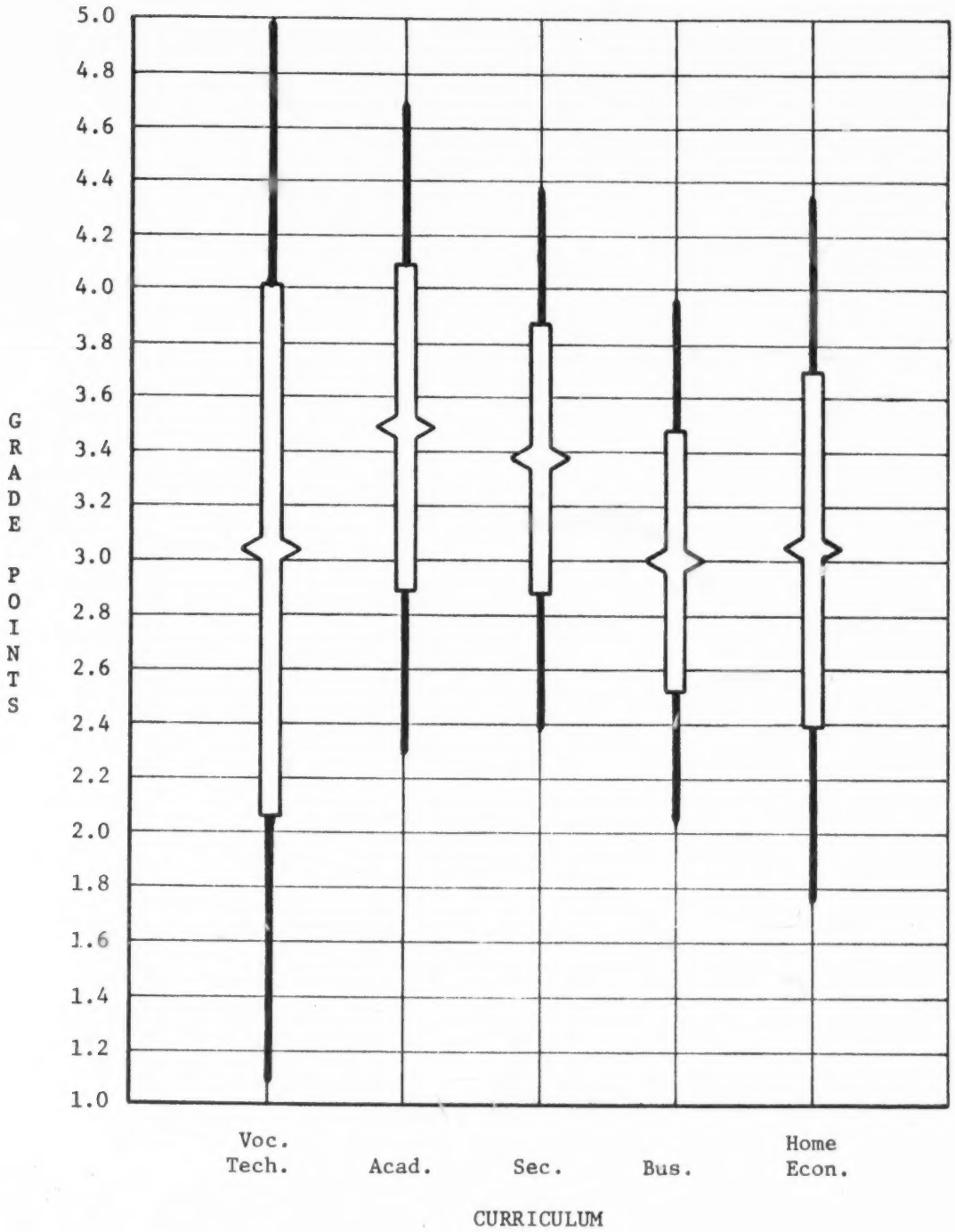

Figure 33: Curriculum Profile of Grade Point Averages and Standard Deviations for Overall Junior High GPA

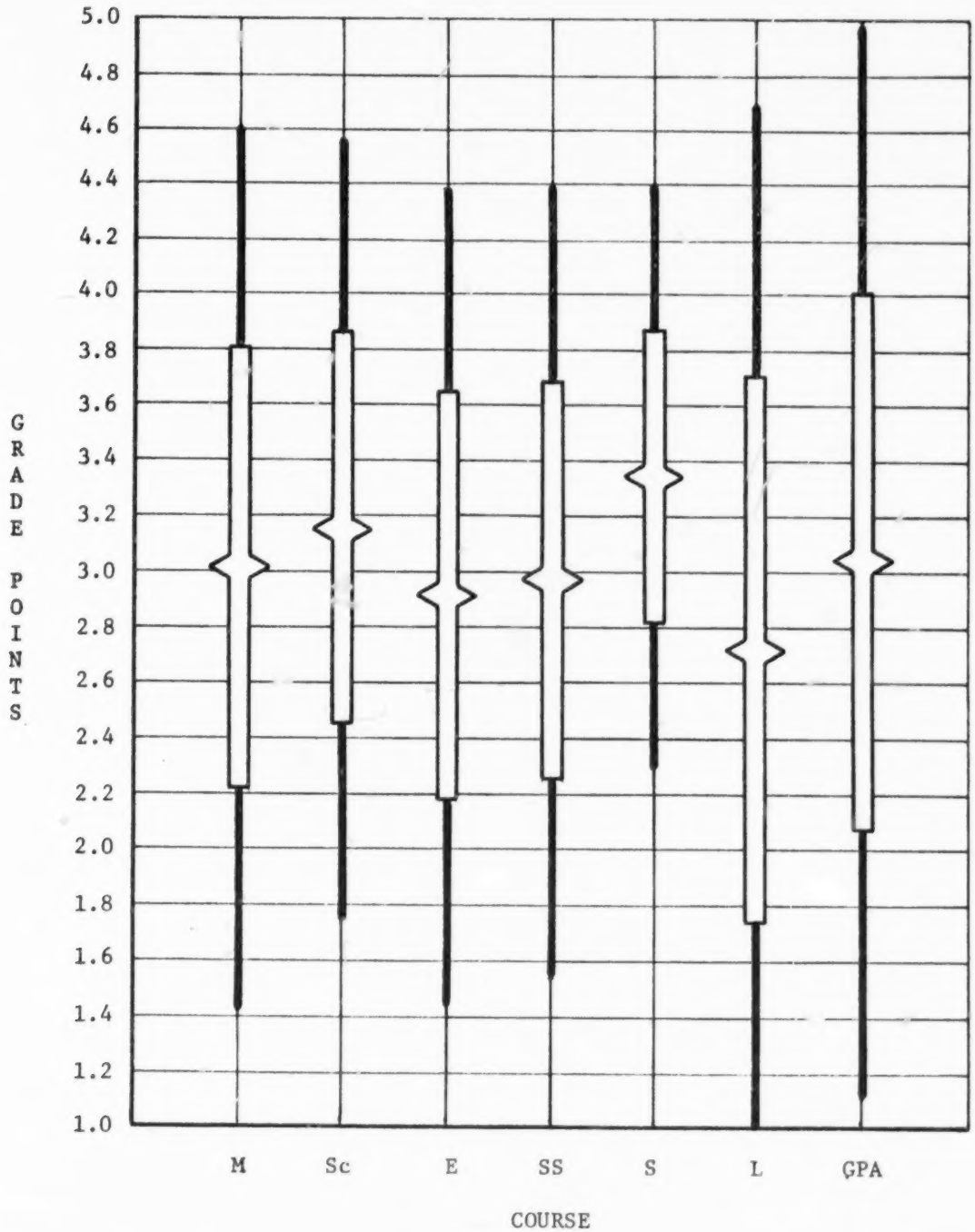

Figure 34: Profile of Junior High Course Grade Point Averages for the Vocational Technical Sample

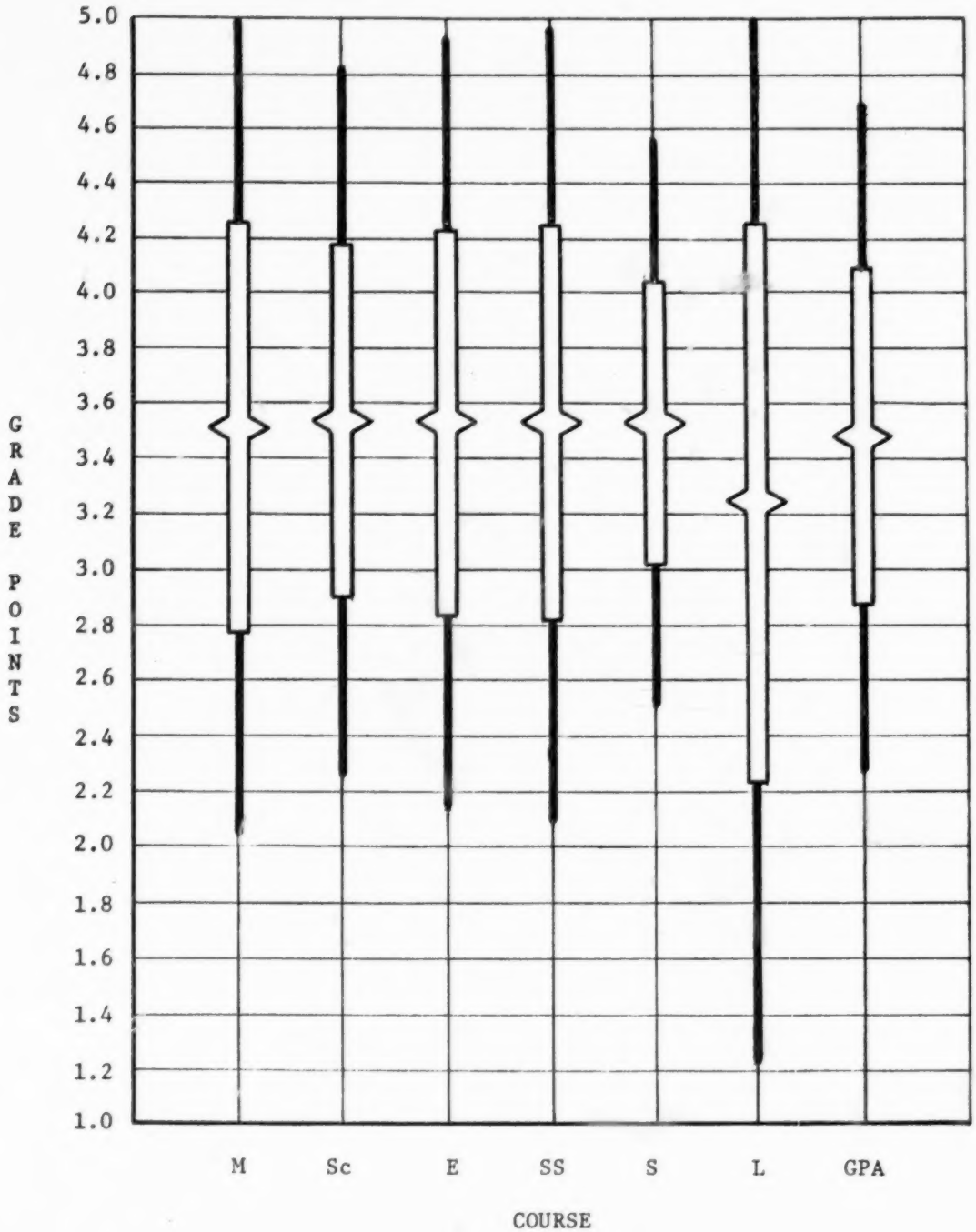

Figure 35: Profile of Junior High Course Grade Point Averages for the Academic Sample

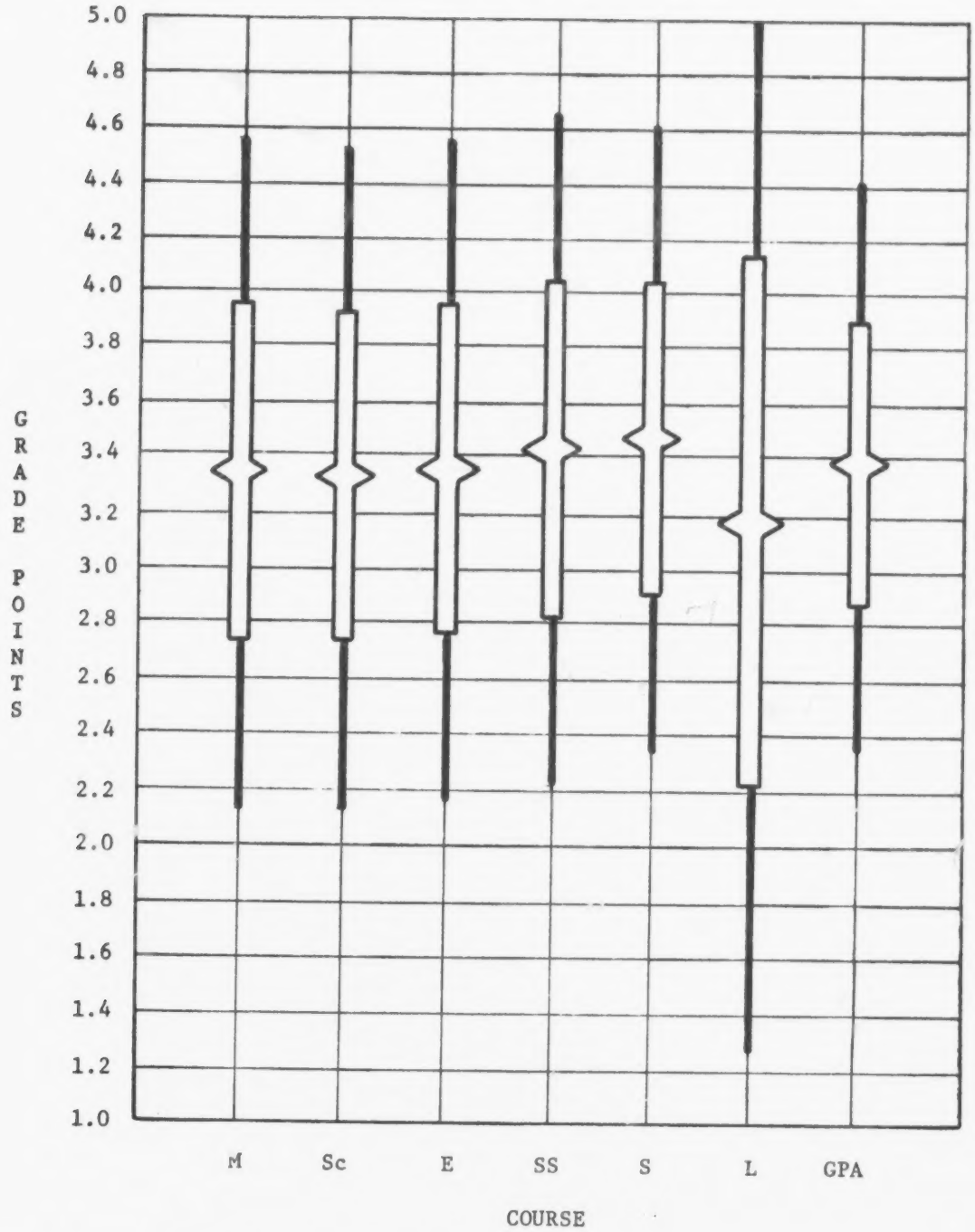

Figure 36: Profile of Junior High Course Grade Point Averages for the Secretarial Sample

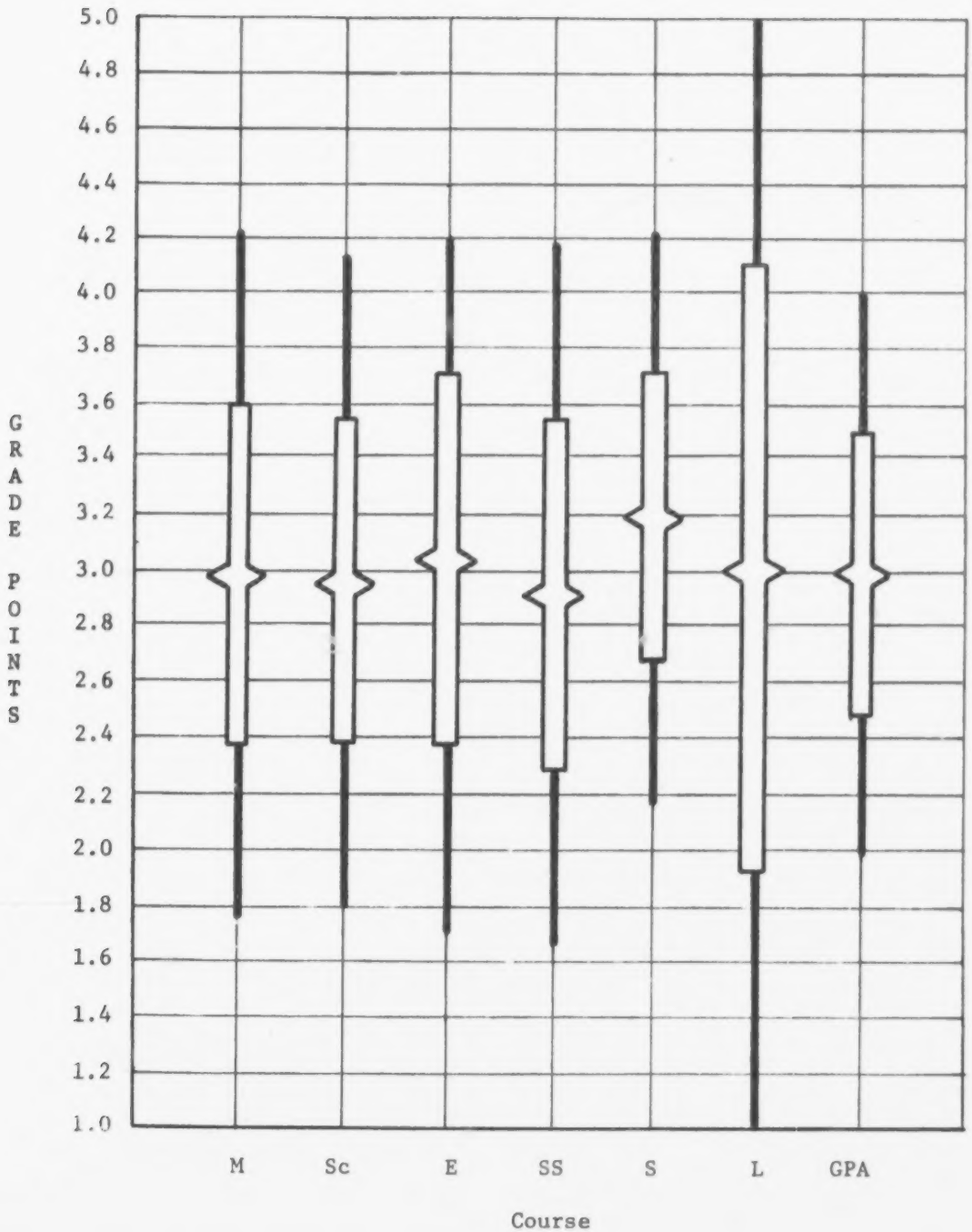

Figure 37: Profile of Junior High Course Grade Point Averages for the Business Sample

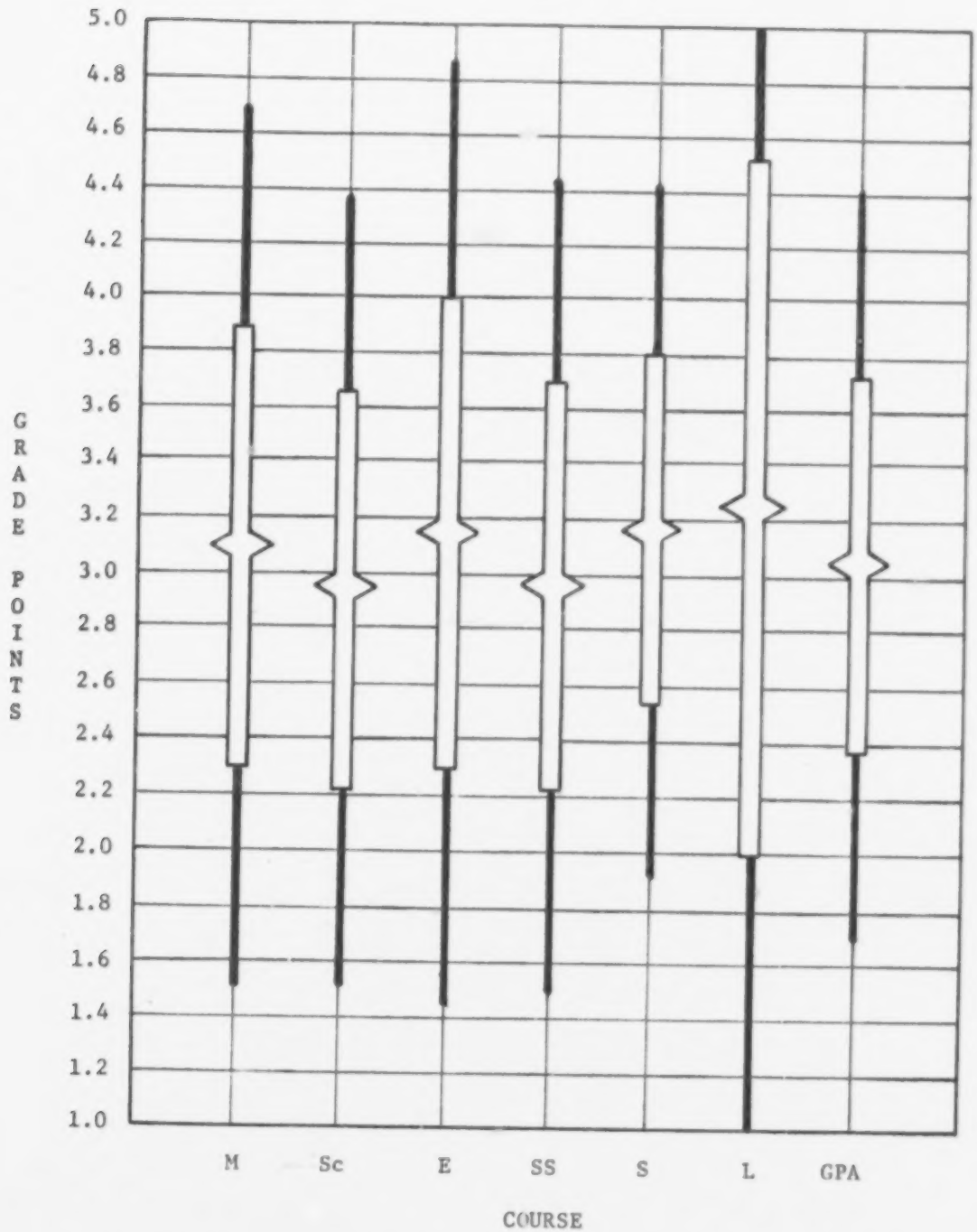

Figure 38: Profile of Junior High Course Grade Point Averages for the Home Economics Sample

Table 4: Means and Standard Deviations of Absences by Curriculum[a]

N = 986

Absences	Voc. Tech. N = 294	Acad. N = 411	Sec. N = 98	Bus. N = 101	Home Econ. N = 82	F Ratio	Probability[c]
Days missed[b]	21.12 (17.37)	20.22 (17.41)	19.27 (17.34)	27.52 (19.12)	27.66 (25.50)	5.86	0.001

[a]The standard deviation values are in parentheses.

[b]The chi-square value from a Bartlett's test for homogeneity of variance does not support the hypothesis of equal population variances at the .05 significance level.

[c]The probability that the obtained F Ratio occurred by chance.

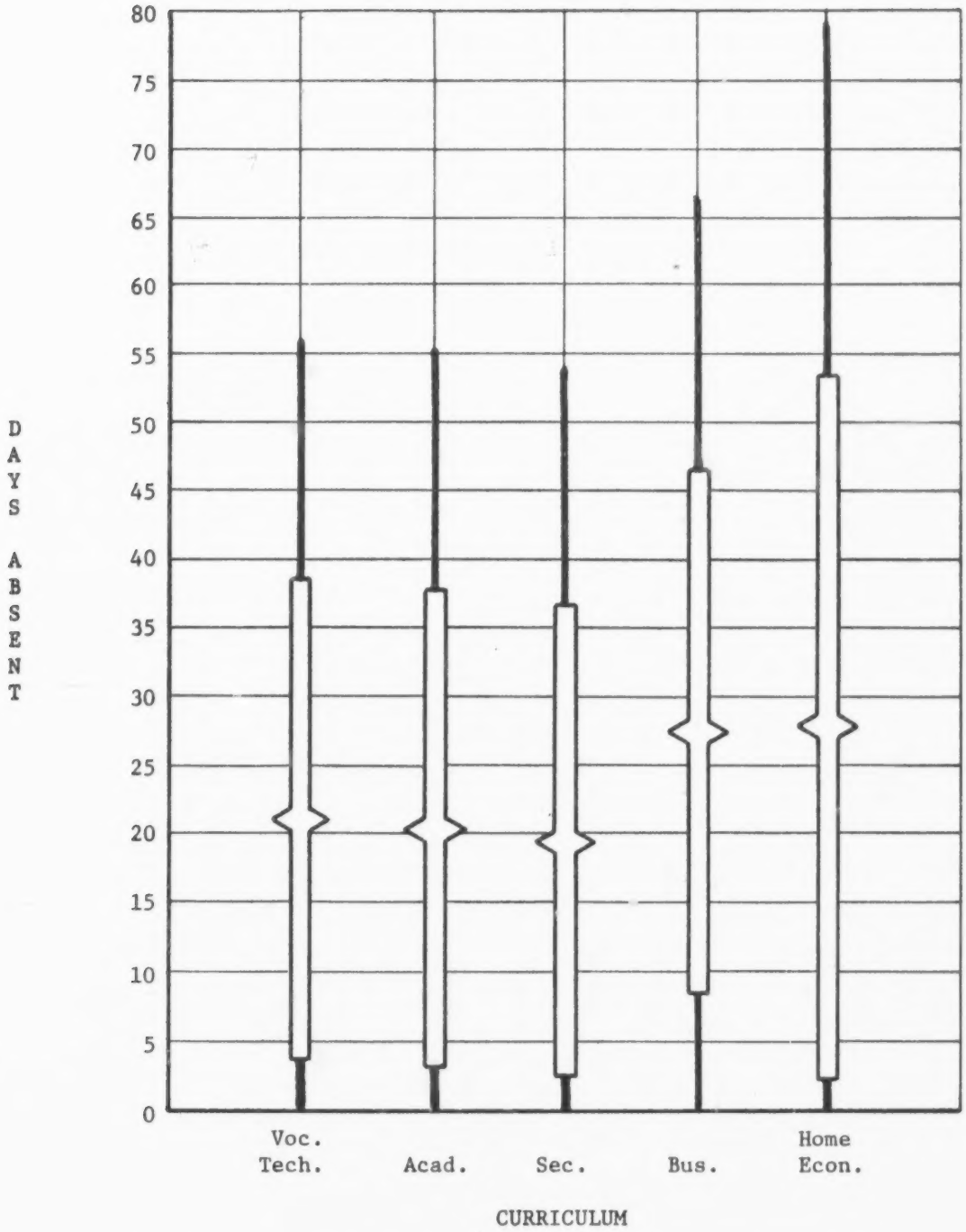

Figure 39: Curriculum Profile of Means and Standard Deviations for Total Days Absent[a]

[a]Summed over grades 7, 8 and 9.

Table 5: Means and Standard Deviations of Vocational Maturity Scores by Curriculum[a]

N = 1016

	Voc. Tech. N = 308	Acad. N = 419	Sec. N = 101	Bus. N = 105	Home Econ. N = 84	F Ratio	Probability[b]
Vocational Development Inventory	34.43 (4.83)	35.71 (4.72)	35.84 (4.66)	34.04 (4.43)	33.83 (5.59)	6.44	0.001

[a]The standard deviation values are in parentheses.

[b]The probability that the obtained F Ratio occurred by chance.

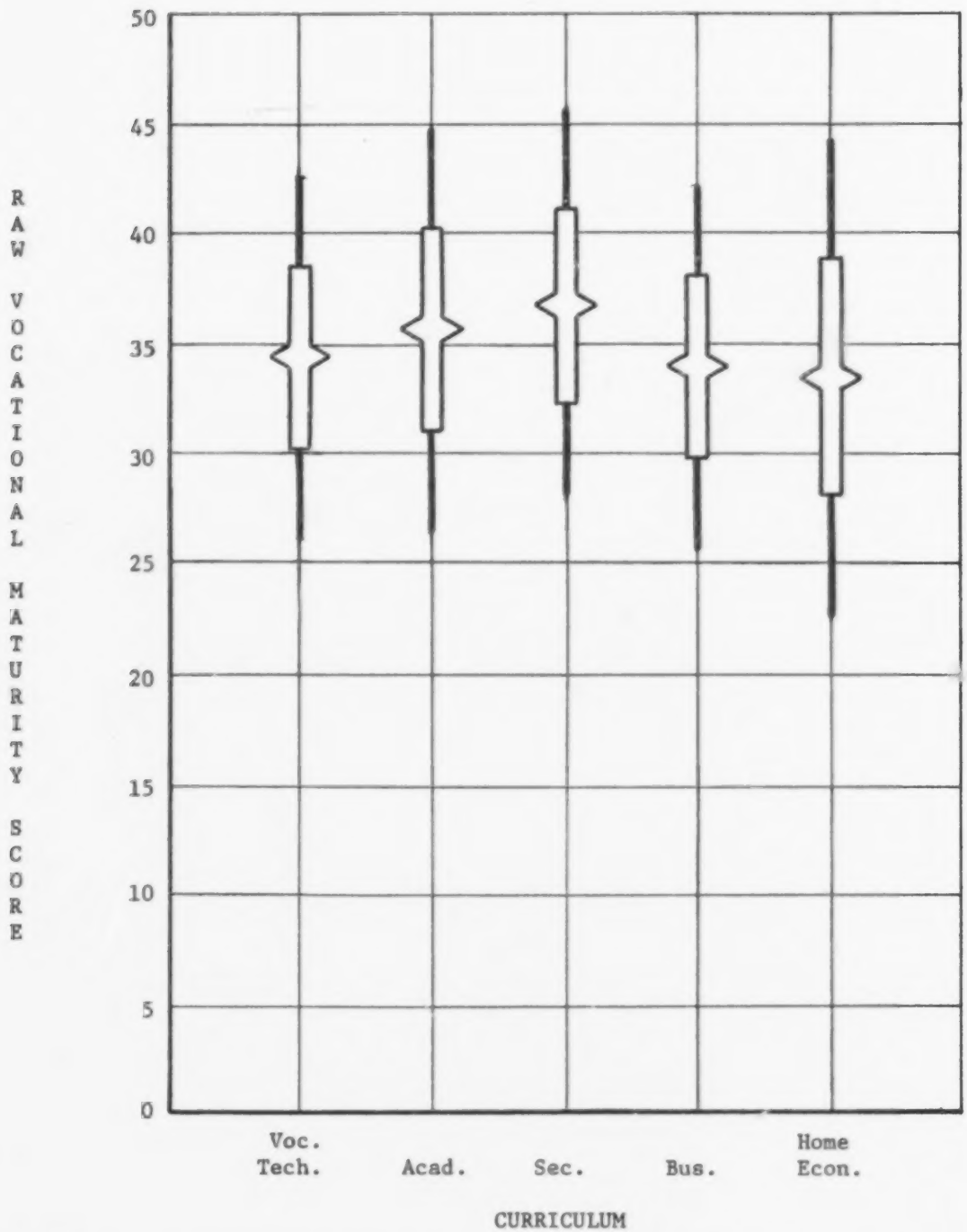

Figure 40: Curriculum Profile of Means and Standard Deviations for the Vocational Development Inventory

Table 6: Frequency Distribution and Chi-square Analysis for California Achievement Test - Reading Vocabulary

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	70	175	28	9	18	300
9	32	71	16	15	6	140
8	24	24	5	6	3	62
7	34	37	10	9	5	95
6	13	16	7	9	7	52
5	18	19	10	10	10	67
4	19	13	5	14	9	60
3	31	16	1	12	7	67
2	3	3	2	2	1	11
1	4	3	1	1	4	13
Column Totals (N)	248	377	85	87	70	867
DF = 36		Chi-square = 121.39		Probability = 0.001[a]		

[a]Probability of exceeding the chi-square value by chance.

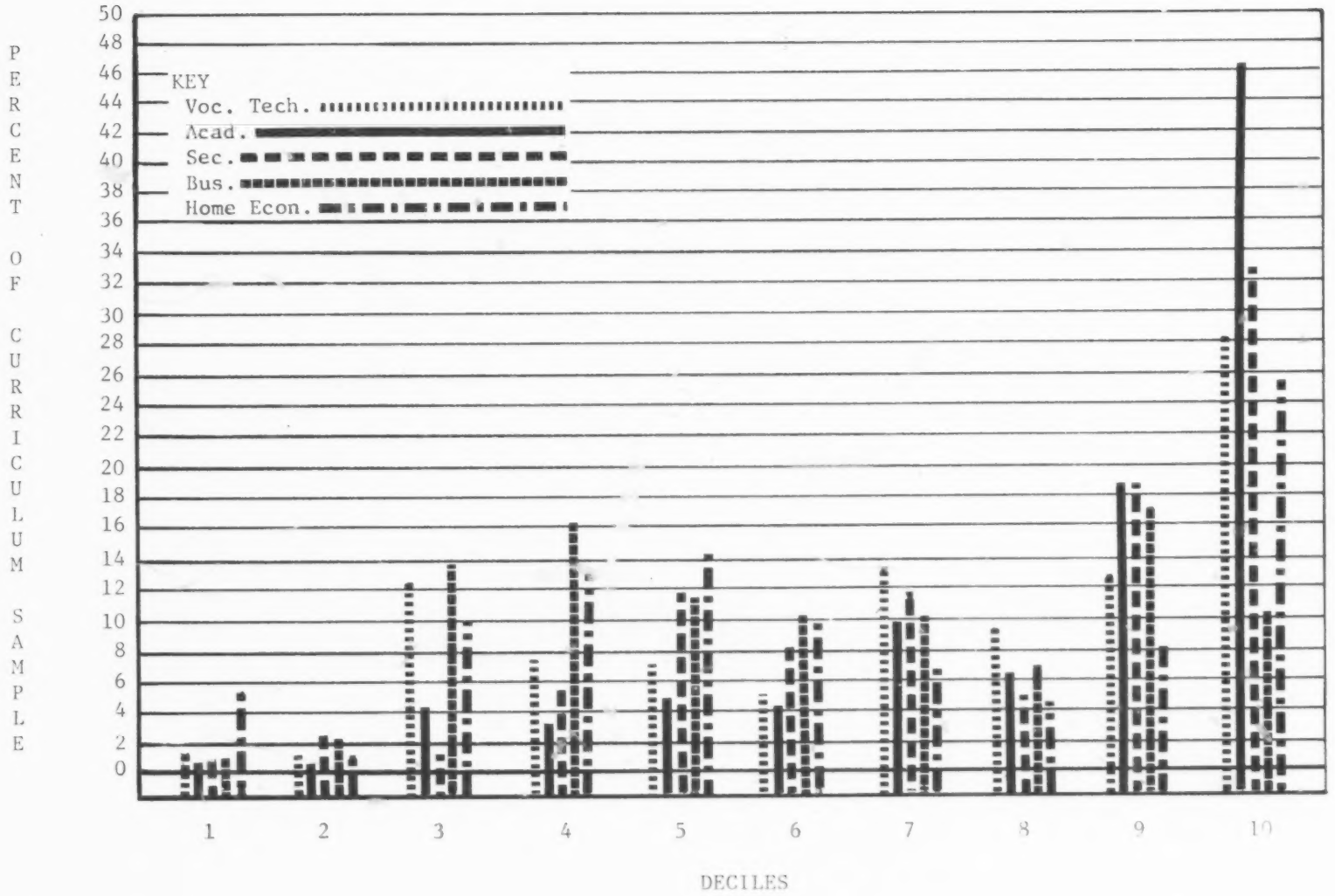

Figure 41: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Reading Vocabulary

Table 7: Frequency Distribution and Chi-square Analysis for California Achievement Test - Reading Comprehension

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	37	104	11	5	12	169
9	23	49	14	3	3	92
8	17	45	7	8	2	79
7	20	47	12	14	8	101
6	26	32	13	10	6	87
5	35	39	9	11	7	101
4	27	19	6	11	8	71
3	30	26	7	12	12	87
2	18	11	5	7	9	50
1	14	5	1	6	3	29
Column Totals (N)	247	377	85	87	70	866

DF = 36 Chi-square = 102.25 Probability = 0.001[a]

[a]Probability of exceeding the chi-square value by chance.

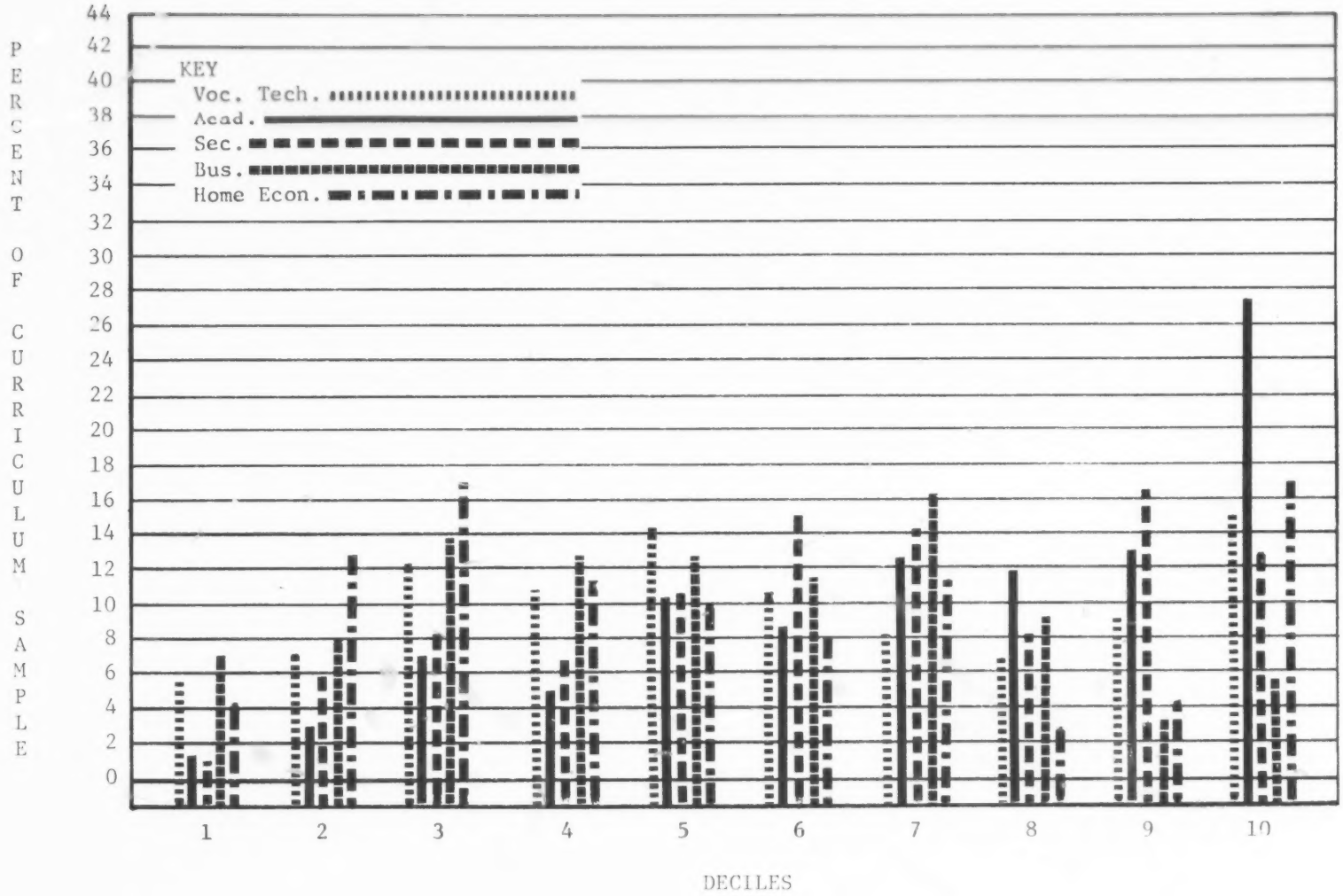

Figure 42: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Reading Comprehension

Table 8: Frequency Distribution and Chi-square Analysis for California Achievement Test - Total Reading

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	18	75	14	2	7	116
9	6	24	9	1	4	44
8	14	31	10	3	1	59
7	7	13	5	3	4	32
6	15	8	7	7	2	39
5	7	12	2	2	0	23
4	13	15	4	3	3	38
3	12	10	5	4	3	34
2	3	4	2	2	4	15
1	4	3	0	0	1	8
Column Totals (N)	99	195	58	27	29	408

DF = 36 Chi-square = 69.25 Probability = 0.001[a]

[a]Probability of exceeding the chi-square value by chance.

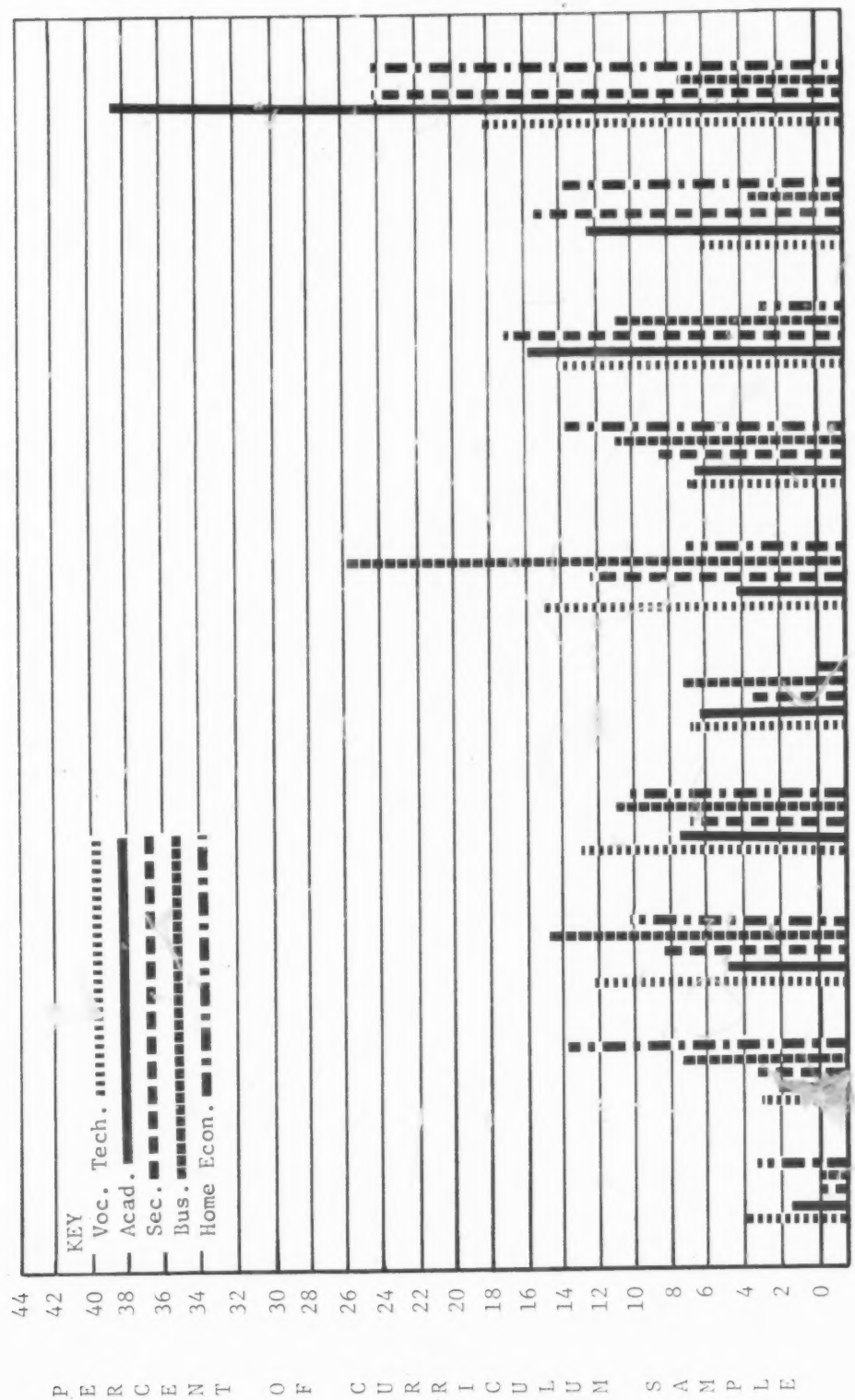

Figure 43: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Total Reading

Table 9: Frequency Distribution and Chi-square Analysis for California Achievement Test - Arithmetic Reasoning

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	43	115	13	5	8	184
9	24	44	8	6	2	84
8	50	73	23	9	10	165
7	28	39	9	9	7	92
6	31	44	15	18	13	121
5	19	23	5	13	10	70
4	33	22	9	14	6	84
3	11	6	1	6	6	30
2	9	8	2	6	7	32
1	3	1	0	1	2	7
Column Totals (N)	251	375	85	87	71	869

DF = 36 Chi-square = 108.83 Probability = 0.001[a]

[a]Probability of exceeding the chi-square value by chance.

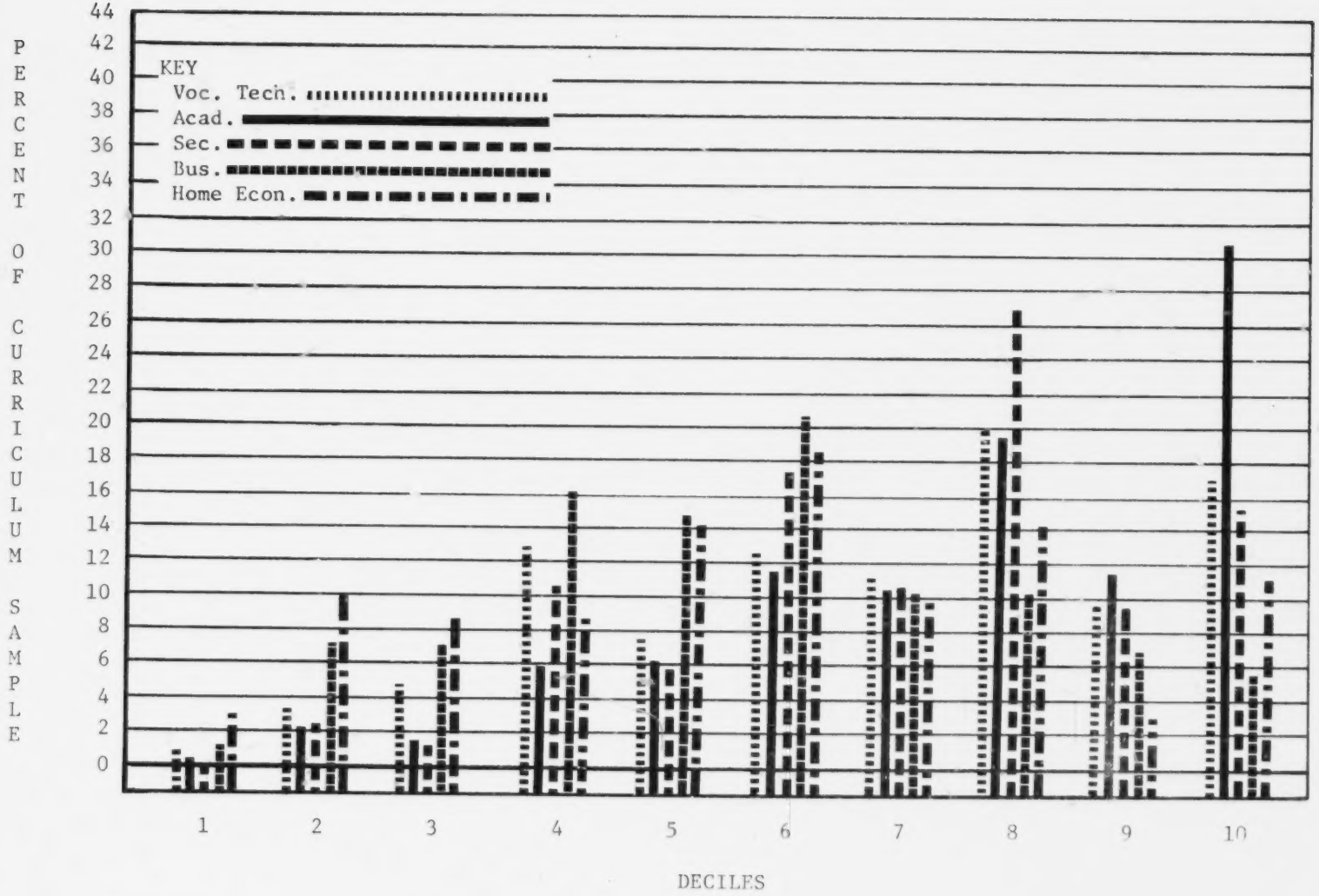

Figure 44: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Arithmetic Reasoning

Table 10: Frequency Distribution and Chi-square Analysis for California Achievement Test - Arithmetic Fundamentals

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	22	89	12	4	8	135
9	15	37	8	7	3	70
8	16	34	11	2	1	64
7	24	44	7	7	4	86
6	20	30	7	6	7	70
5	15	22	4	5	9	55
4	53	66	25	23	17	184
3	26	20	5	12	7	70
2	48	27	6	12	12	105
1	12	6	0	9	3	30
Column Totals (N)	251	375	85	87	71	869
DF = 36	Chi-square = 113.08			Probability = 0.001[a]		

[a]Probability of exceeding the chi-square value by chance.

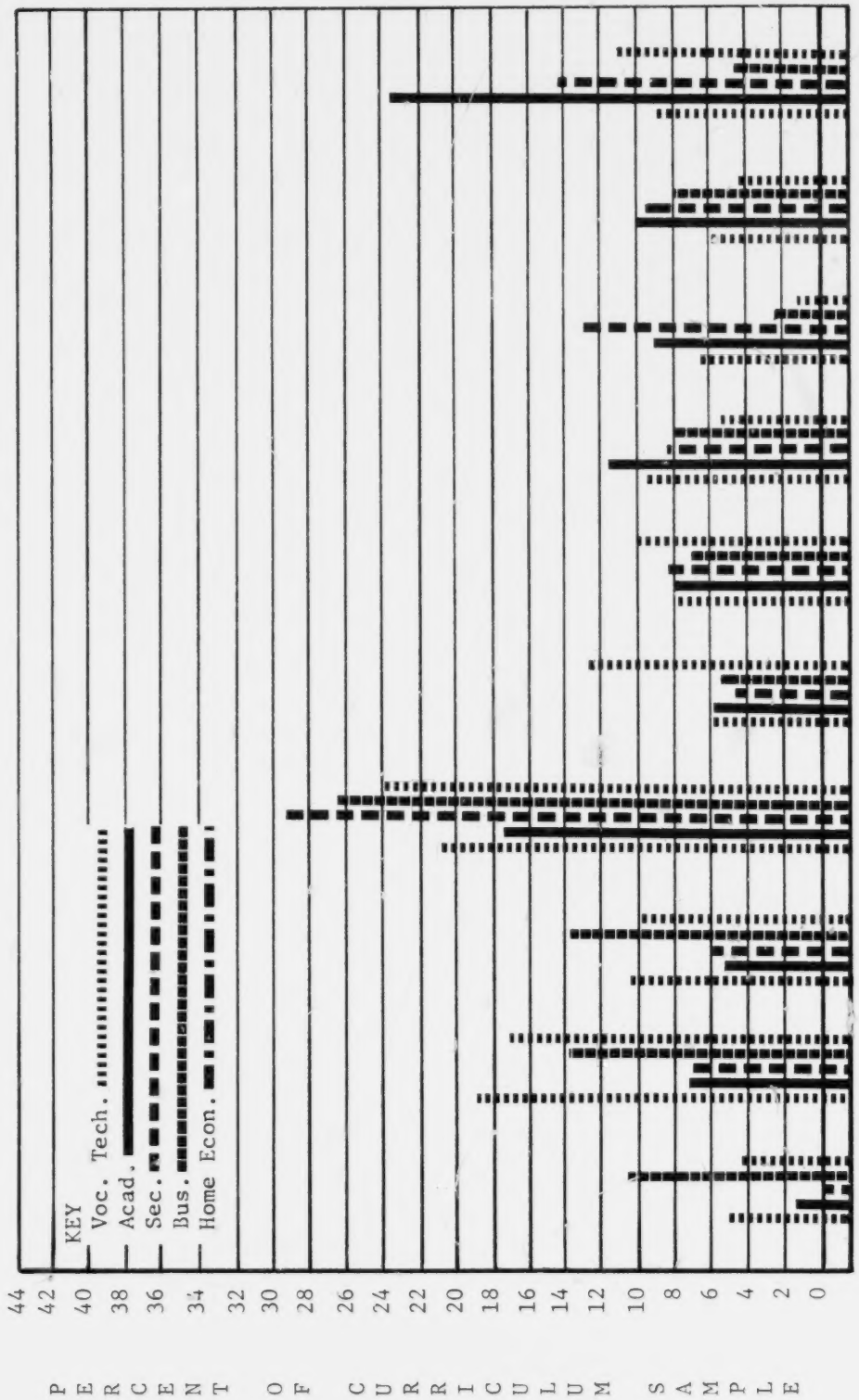

Figure 45: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Arithmetic Fundamentals

Table 11: Frequency Distribution and Chi-square Analysis for California Achievement Test - Total Arithmetic

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	15	63	9	2	4	93
9	3	12	7	0	3	25
8	1	7	4	0	1	13
7	16	31	11	4	3	65
6	14	16	4	1	2	37
5	10	11	7	3	2	33
4	15	26	11	11	5	68
3	11	17	2	3	5	38
2	14	8	2	2	3	29
1	3	2	1	2	2	10
Column Totals (N)	102	193	58	28	30	411

DF = 36 Chi-square = 68.98 Probability = 0.001[a]

[a]Probability of exceeding the Chi-square value by chance.

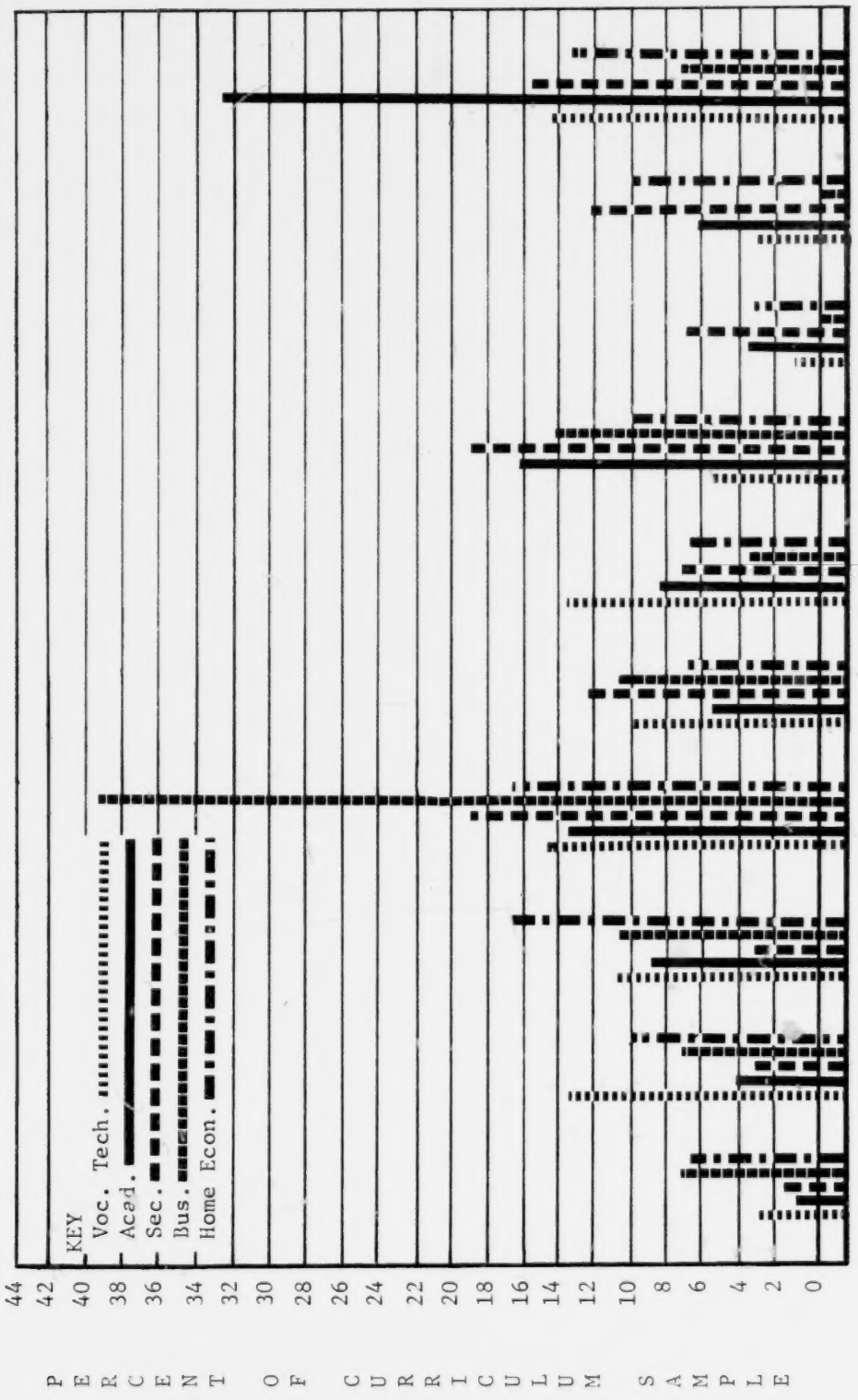

Figure 46: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Total Arithmetic

Table 12: Frequency Distribution and Chi-square Analysis for California Achievement Test - Mechanics of English

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	48	189	39	17	20	313
9	18	38	8	15	6	85
8	25	46	9	12	9	101
7	31	35	12	14	14	106
6	35	28	5	7	4	79
5	27	12	5	6	1	51
4	24	11	4	7	3	54
3	27	9	2	6	6	50
2	7	4	0	3	3	17
1	8	3	1	0	0	12
Column Totals (N)	250	375	85	87	71	868

DF = 36 Chi-square = 145.53 Probability = 0.001[a]

[a]Probability of exceeding the chi-square value by chance.

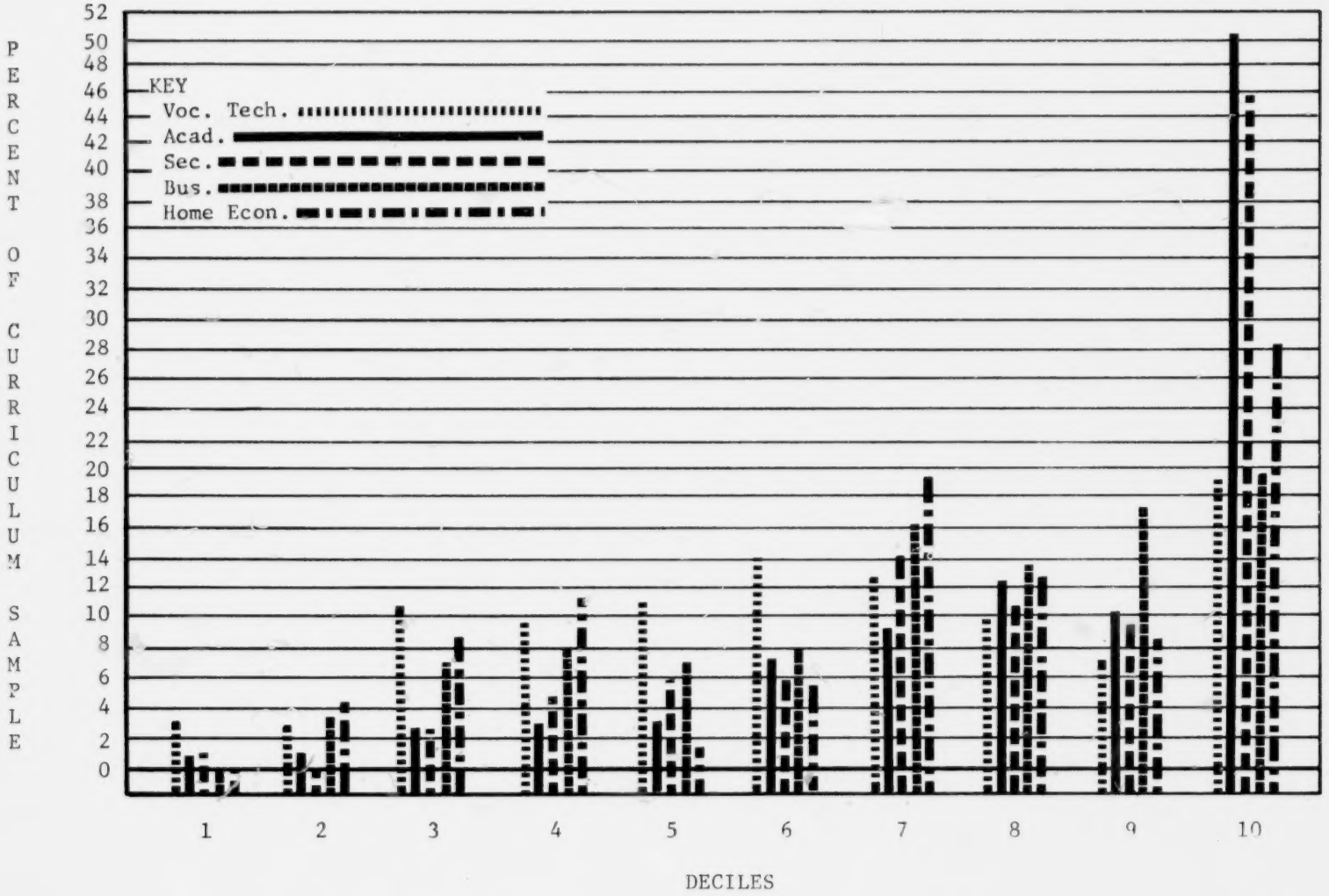

Figure 47: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Mechanics of English

Table 13: Frequency Distribution and Chi-square Analysis for California Achievement Test - Spelling

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	18	79	16	9	14	136
9	31	89	21	16	13	170
8	16	28	13	4	3	64
7	27	48	13	12	6	106
6	0	0	0	0	0	0
5	34	40	7	14	10	105
4	35	38	9	10	6	98
3	40	27	4	14	9	94
2	35	21	2	5	6	69
1	15	5	0	3	4	27
Column Totals (N)	251	375	85	87	71	869
DF = 36		Chi-square = 98.89		Probability = 0.001[a]		

[a]Probability of exceeding the chi-square value by chance.

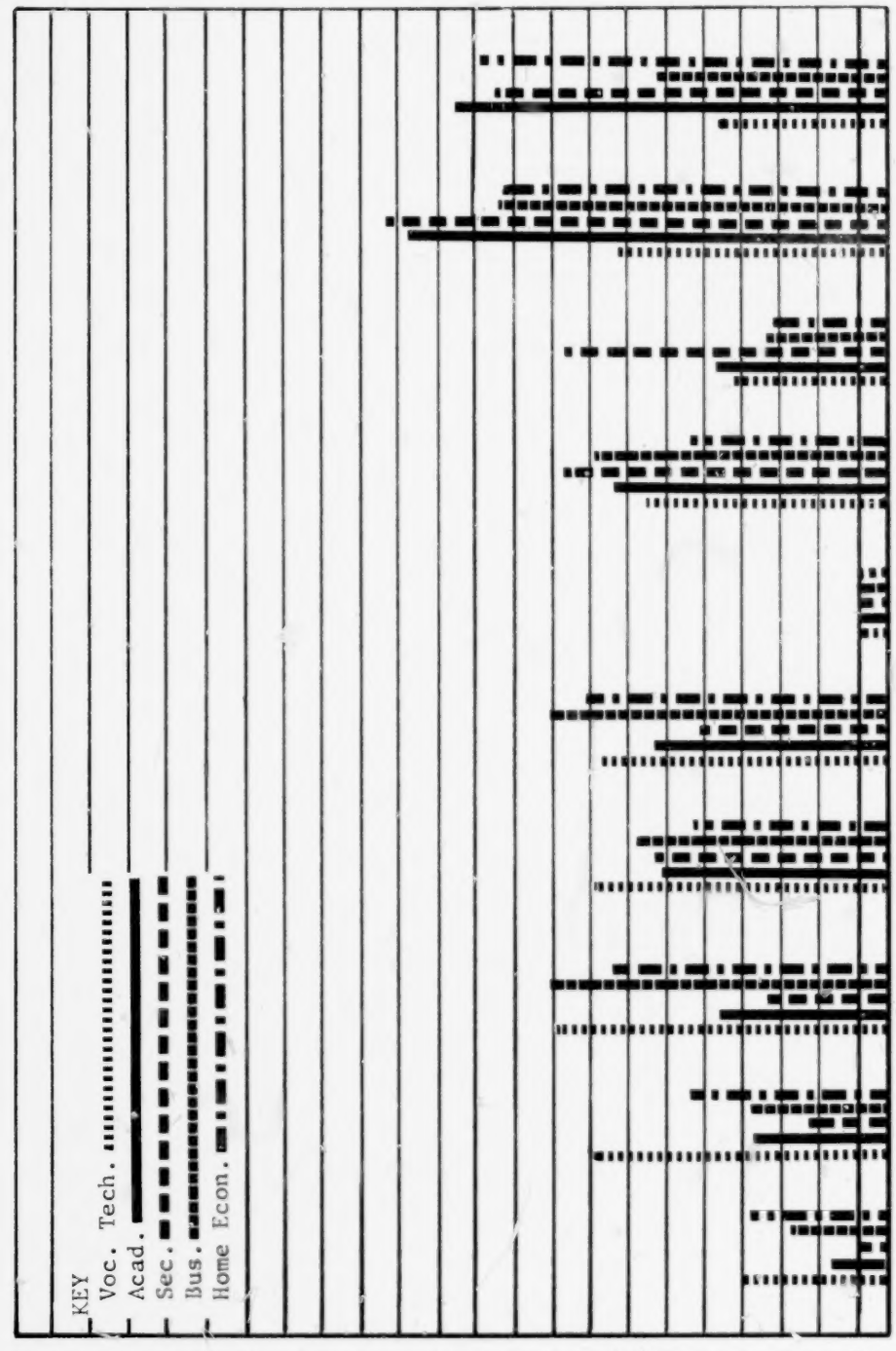

Figure 48: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Spelling

Table 14: Frequency Distribution and Chi-square Analysis for California Achievement Test - Total Language

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	9	78	21	6	9	123
9	7	24	14	2	6	53
8	10	23	5	2	3	43
7	13	21	5	4	1	44
6	9	10	4	3	0	26
5	11	7	1	3	2	24
4	21	13	6	5	1	46
3	12	8	2	2	2	26
2	7	7	0	1	6	21
1	3	2	0	0	0	5
Column Totals (N)	102	193	58	28	30	411

DF = 36 Chi-square = 93.35 Probability = 0.001[a]

[a]Probability of exceeding the chi-square value by chance.

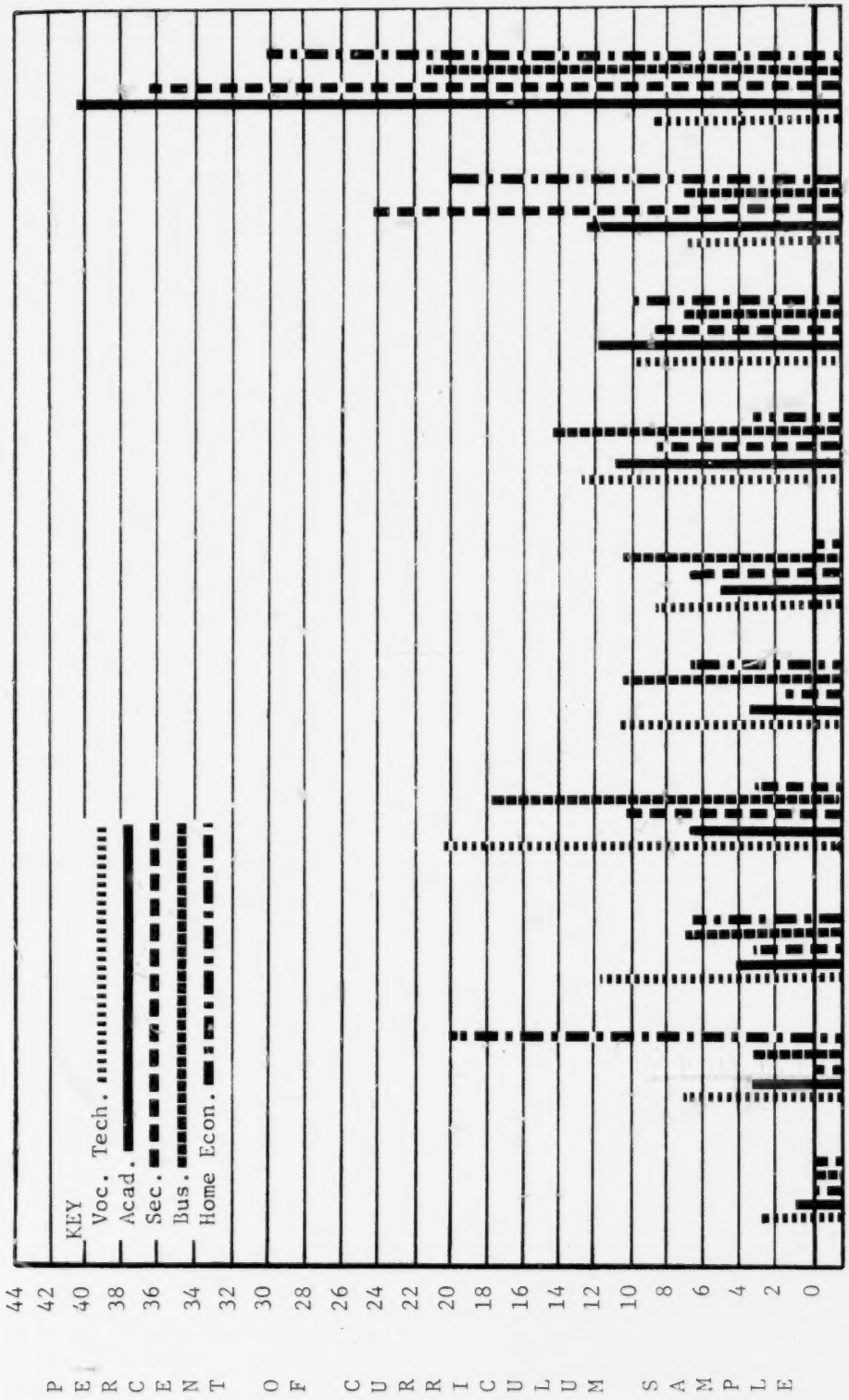

Figure 49: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Total Language

Table 15: Frequency Distribution and Chi-square Analysis for California Achievement Test - Total

Deciles	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
10	45	126	25	7	13	216
9	20	68	9	9	8	114
8	10	25	10	3	2	50
7	27	40	13	11	7	98
6	23	29	9	11	4	76
5	21	16	5	8	5	55
4	31	22	6	15	10	84
3	15	9	6	8	5	43
2	29	13	1	8	8	59
1	10	4	0	2	4	20
Column Totals (N)	231	352	84	82	66	815

DF = 36 Chi-square = 117.15 Probability = 0.001[a]

[a]Probability of exceeding the chi-square value by chance.

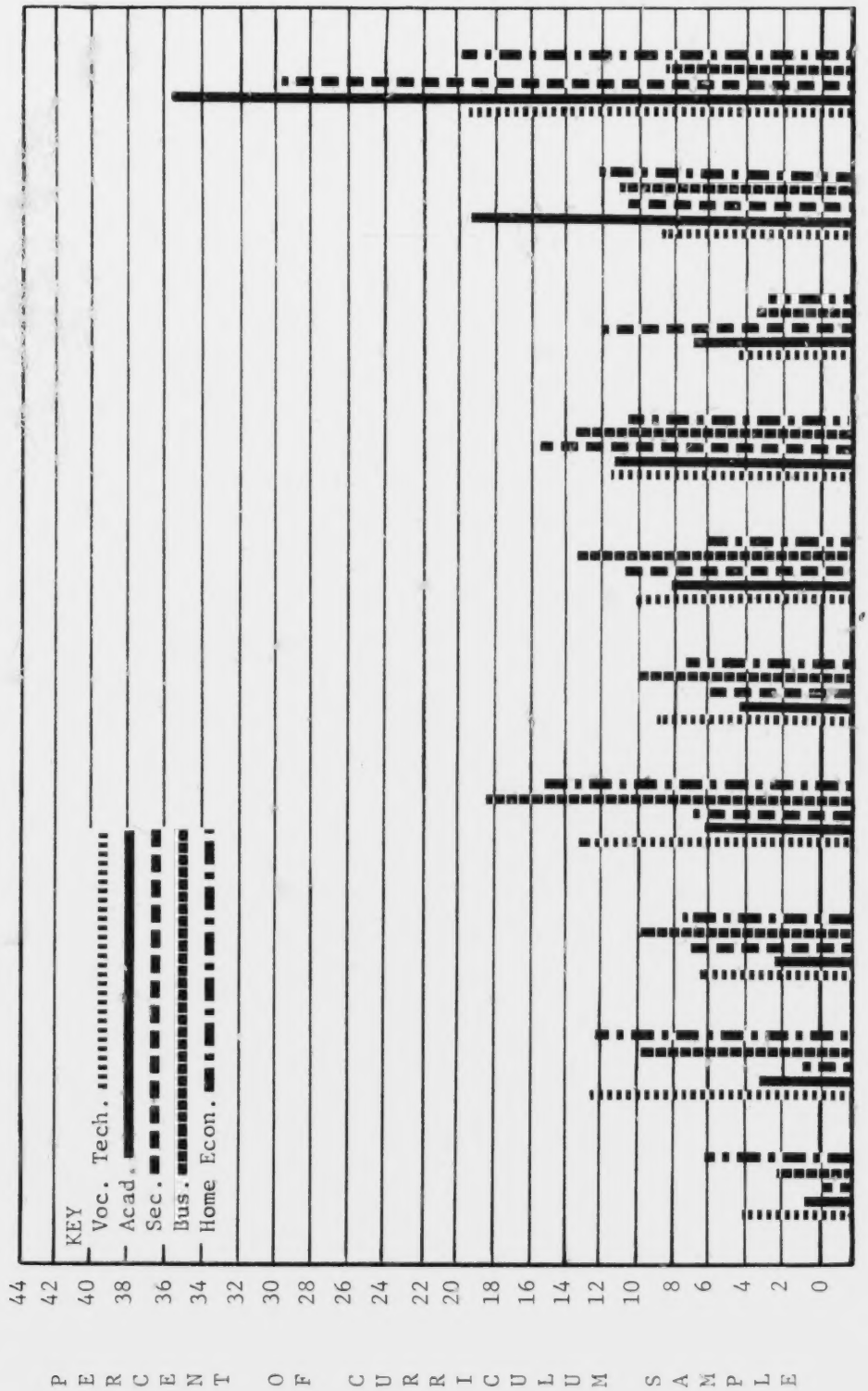

Figure 50: Percentage Distribution of Curriculum Samples by Deciles on the CAT--Total

Table 16: Frequency Distribution and Chi-square Analysis for Father's Educational Level

Father's Ed. Level	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
0 thru 5 yrs.	1	2	1	1	0	5
6 thru 8 yrs.	33	22	10	15	11	91
9 thru 11 yrs.	73	61	14	24	17	189
H.S. Grad.	153	201	57	46	38	495
13 thru 15 yrs.	8	54	6	5	7	80
Col. Grad.	13	33	3	3	3	55
Grad. Work	4	18	1	1	4	28
Column Totals (N)	285	391	92	95	80	943
DF = 28	Chi-square = 74.94			Probability = 0.001[a]		

Table 17: Frequency Distribution and Chi-square Analysis for Father's Occupational Level

Father's Occ. Level	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
1	1	8	1	0	1	11
2	9	25	0	3	5	42
3	35	98	16	16	10	175
4	104	109	31	26	21	291
5	116	131	40	45	30	362
6	13	11	6	3	6	39
Retired	8	1	1	1	3	14
Unemployed	1	9	1	2	0	13
Column Totals (N)	287	392	96	96	76	947
DF = 28	Chi-square = 63.93			Probability = 0.001[a]		

[a]The probability of exceeding the chi-square value by chance.

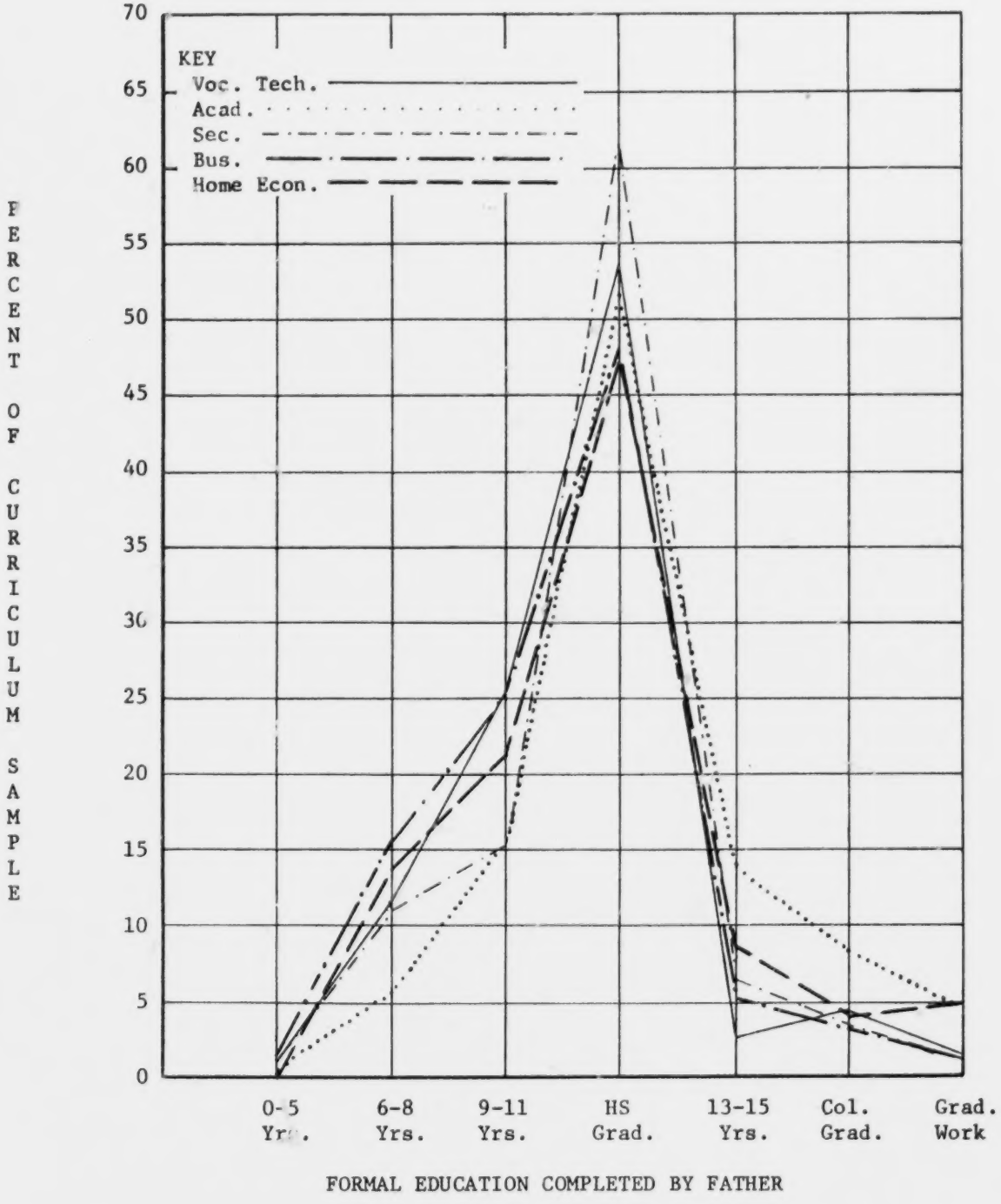

Figure 51: Percentage Distribution of Curriculum Samples by Father's Educational Level

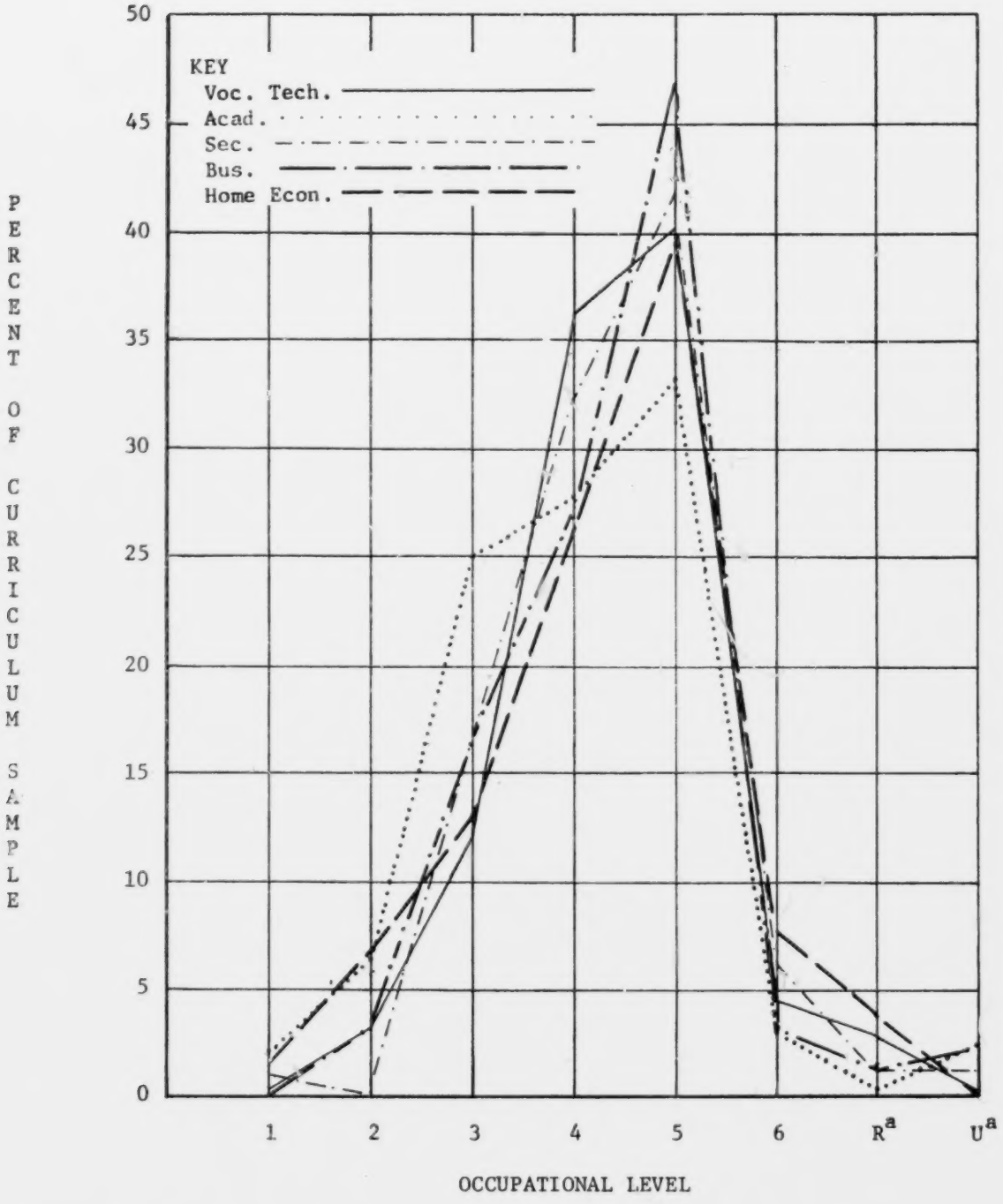

Figure 52: Percentage Distribution of Curriculum Samples by Father's Occupational Level

[a]Categories "R" and "U" represent Retired and Unemployed.

Table 18: Frequency Distribution and Chi-square Analysis for Mother's Educational Level

Mother's Ed. Level	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
0 thru 5 yrs.	0	0	0	1	0	1
6 thru 8 yrs.	15	10	7	5	7	44
9 thru 11 yrs.	62	58	18	30	26	194
H.S. Grad.	192	257	60	62	43	614
13 thru 15 yrs.	13	46	9	2	3	73
Col. Grad.	6	26	1	1	2	36
Grad. Work	2	10	1	0	2	15
Column Totals (N)	290	407	96	101	83	977
DF = 24	Chi-square = 74.41			Probability = 0.001[a]		

Table 19: Frequency Distribution and Chi-square Analysis for Mother's Occupational Level

Mother's Occ. Level	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
1	0	2	0	0	0	2
2	12	33	1	1	0	47
3	9	18	3	1	3	34
4	47	62	16	12	5	142
5	33	44	16	14	8	115
6	197	252	64	75	67	655
Retired	1	0	0	0	0	1
Unemployed	0	1	1	0	0	2
Column Totals (N)	299	412	101	103	83	998
DF = 28	Chi-square = 45.09			Probability = 0.022[a]		

[a]The probability of exceeding the chi-square value by chance.

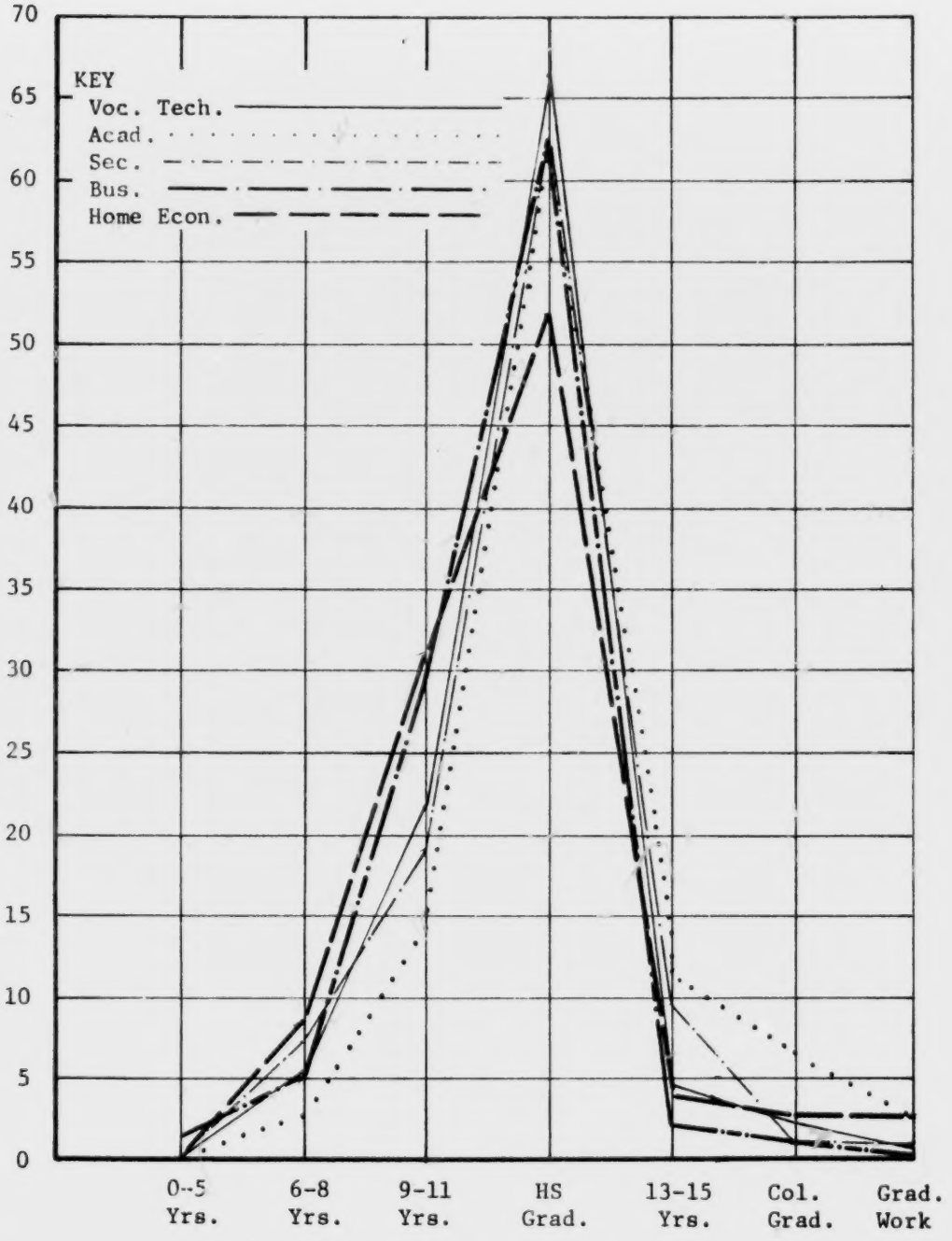

Figure 53: Percentage Distribution of Curriculum Samples by Mother's Educational Level

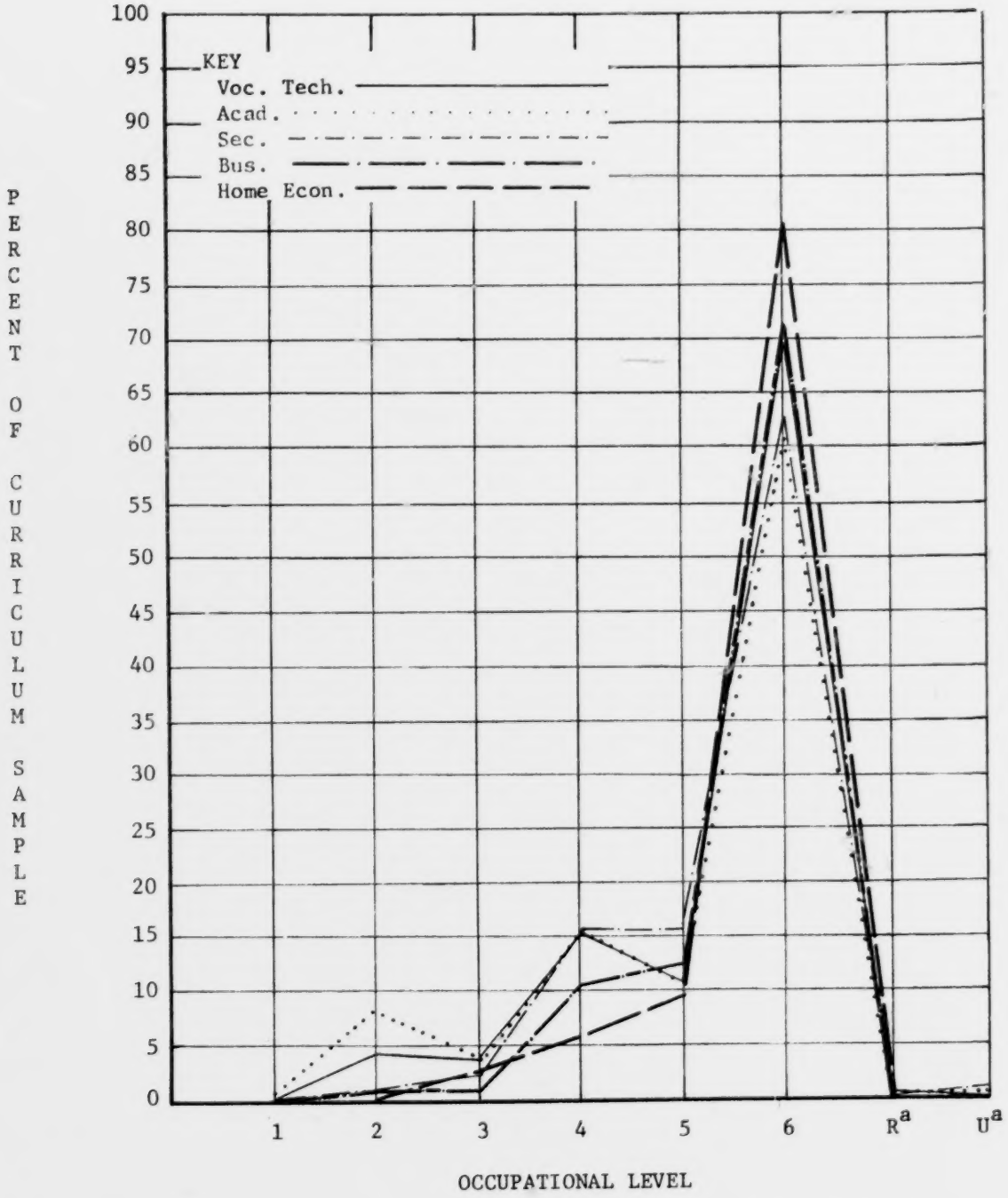

Figure 54: Percentage Distribution of Curriculum Samples by Mother's Occupational Level

[a]Categories "R" and "U" represent Retired and Unemployed.

Table 20: Frequency Distribution and Chi-square Analysis for Family Income

Total Family Income Ranges	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
Did not know/ did not wish to respond	166	233	75	85	65	624
0 to $2999	3	5	0	0	3	11
$3000 to $5999	30	13	8	3	5	59
$6000 to $8999	53	58	8	11	6	136
$9000 +	52	109	11	5	5	182
Column Totals (N)	304	418	102	104	84	1012
DF = 16	Chi-square = 84.72			Probability = 0.001[a]		

Table 21: Frequency Distribution and Chi-square Analysis for Sex

Sex	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
Male	298	208	2	10	2	520
Female	14	214	102	96	85	511
Column Totals (N)	312	422	104	106	87	1031
DF = 4	Chi-square = 503.67			Probability = 0.001[a]		

[a]The probability of exceeding the chi-square value by chance.

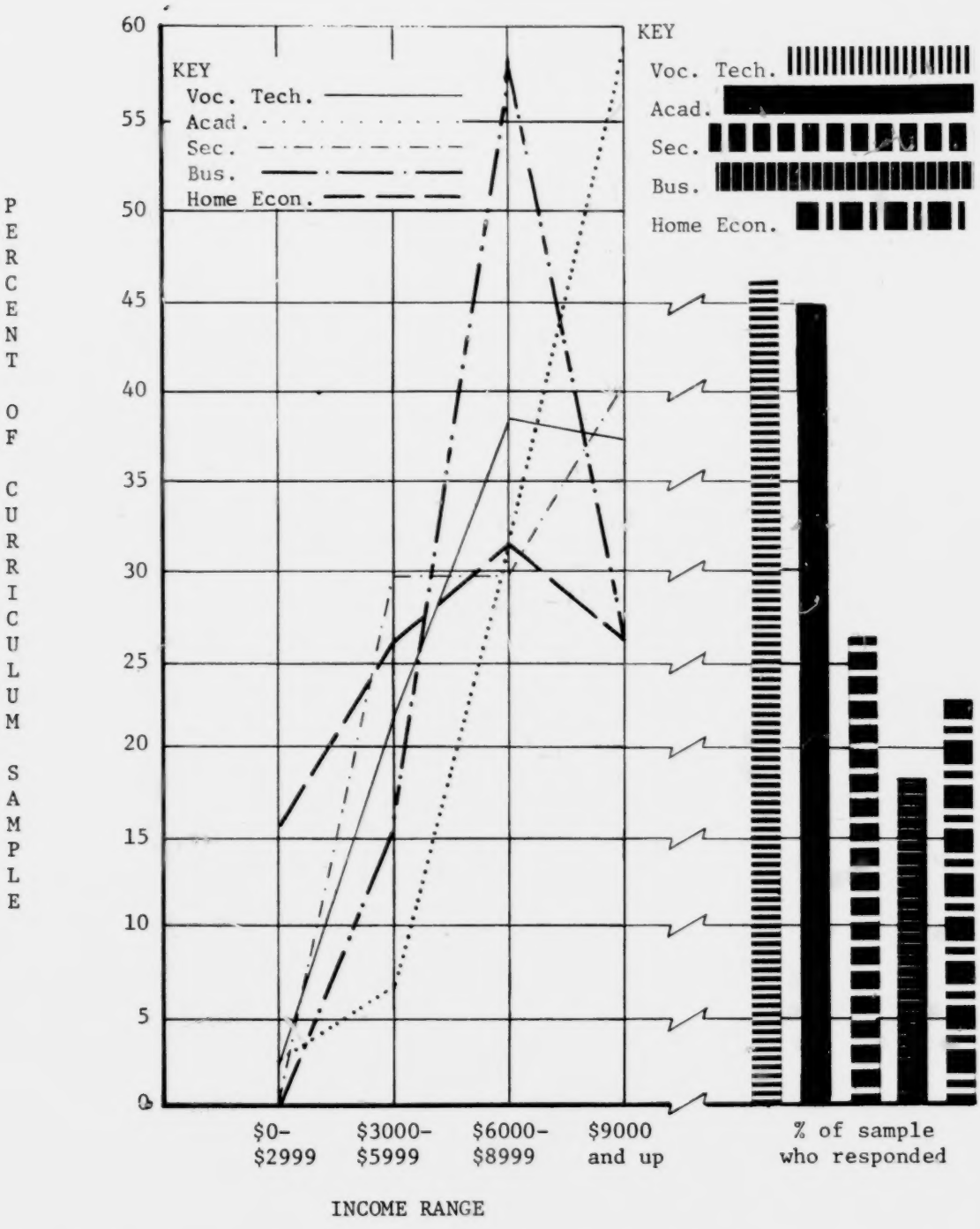

Figure 55: Percentage Distribution of Curriculum Samples by Income

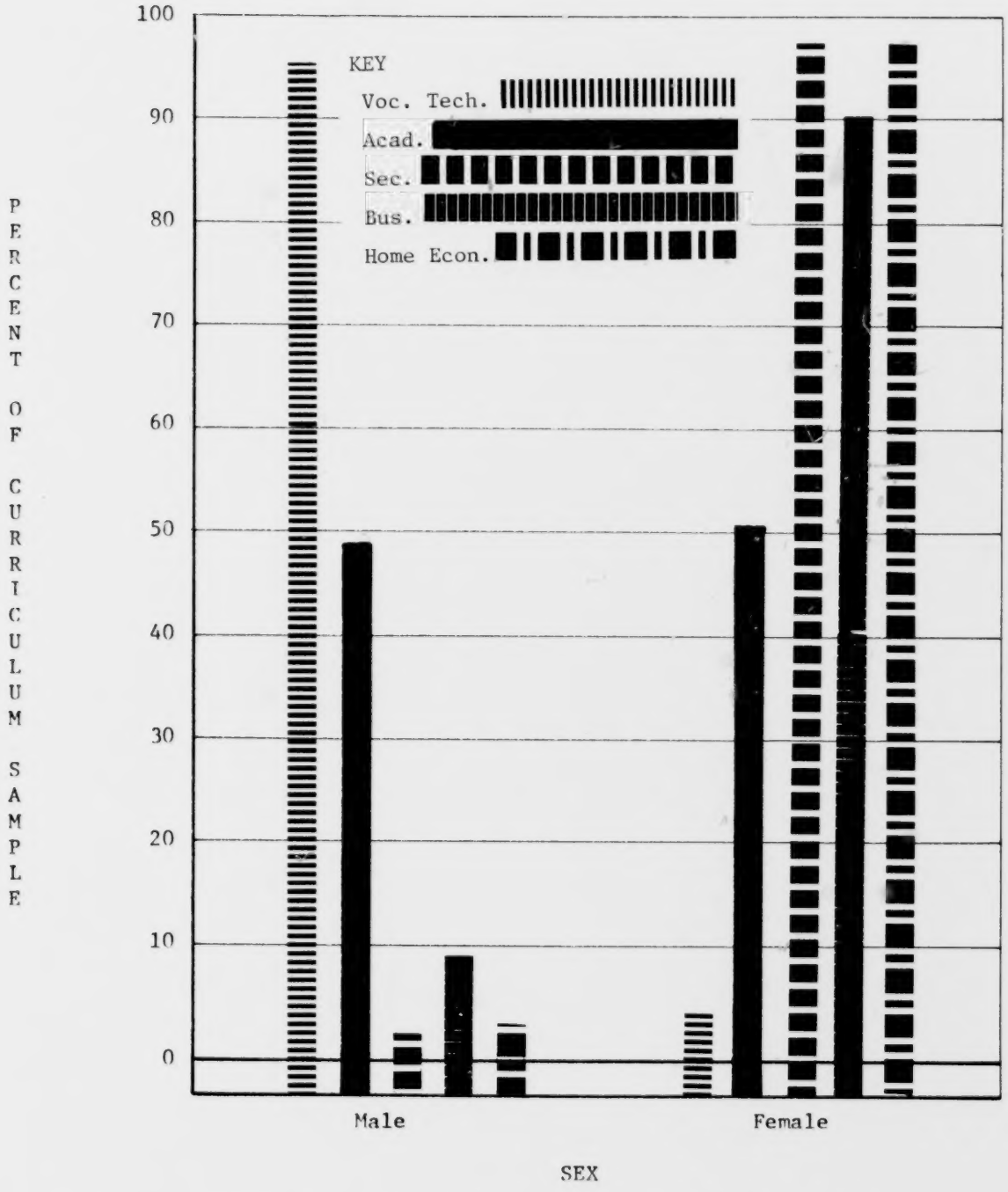

Figure 56: Percentage Distribution of Curriculum Samples by Sex

Table 22: Frequency Distribution and Chi-square Analysis for Birth Order

Order of Birth[a]	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
1	105	128	29	24	24	310
2	85	134	32	30	24	305
3	62	90	27	27	15	221
4	31	36	9	10	8	94
5	11	21	3	10	2	47
6	10	6	1	1	8	26
7	3	4	2	2	3	14
8	2	0	0	1	1	4
9	1	2	0	0	2	5
10	0	1	0	0	0	1
11	0	0	0	1	0	1
12	1	0	0	0	0	1
Column Total (N)	311	422	103	106	87	1029

DF = 44 Chi-square = 64.80 Probability = 0.002[b]

[a]Three cases where the subject was the thirteenth child or higher in his family were not included in the table.

[b]The probability of exceeding the chi-square value by chance.

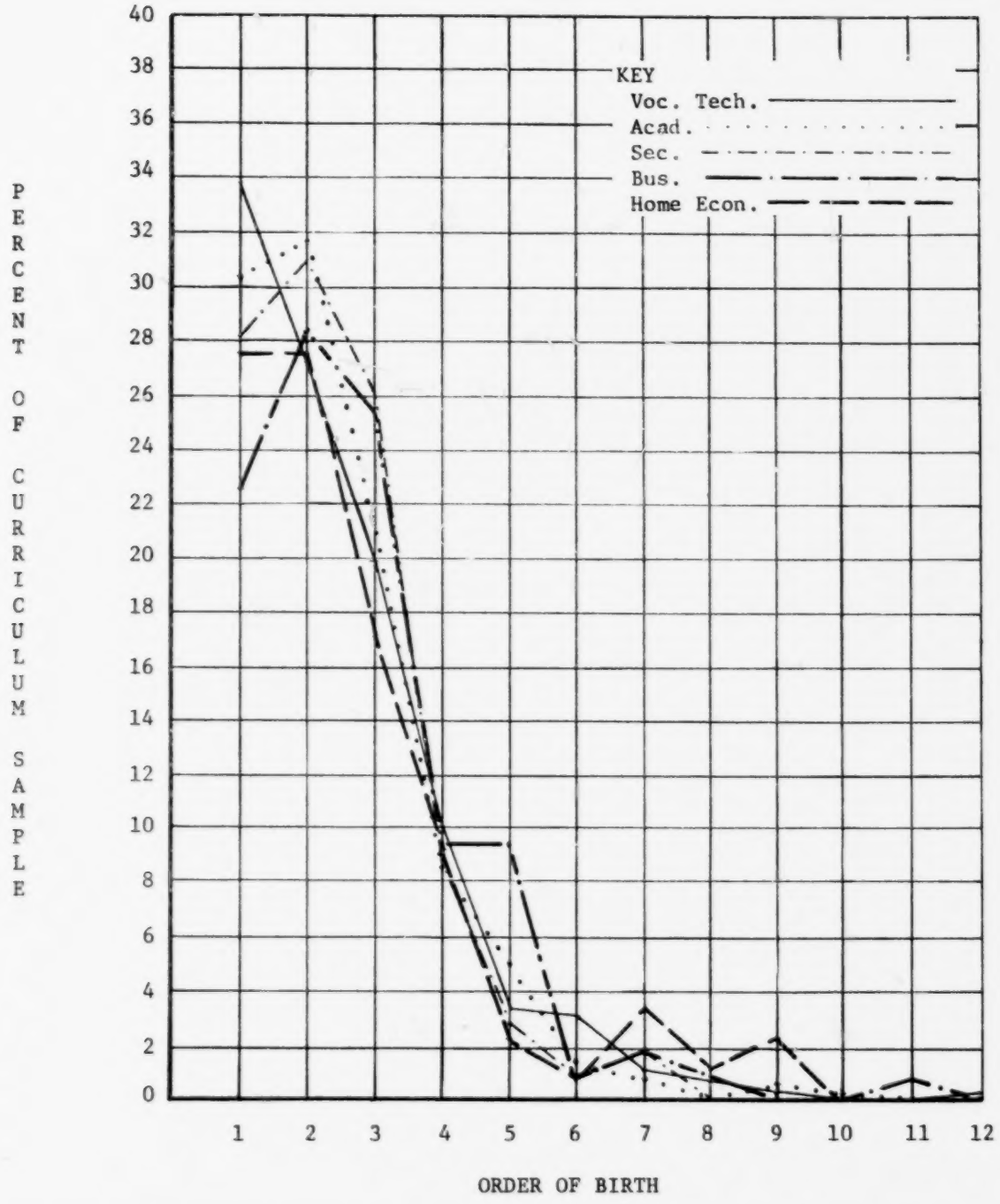

Figure 57: Percentage Distribution of Curriculum Samples by Birth Order

Table 23: Frequency Distribution and Chi-square Analysis for Number of Children in the Family

Number of Children[a]	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
1	23	19	5	5	3	55
2	58	97	17	20	10	202
3	60	100	34	23	26	243
4	55	84	20	18	12	189
5	52	64	13	14	10	153
6	26	30	5	12	10	83
7	17	10	5	4	4	40
8	8	10	2	4	4	28
9	4	3	2	3	2	14
10	2	3	0	0	1	6
11	3	2	0	1	5	11
12	0	0	0	2	0	2
13	1	0	1	0	0	2
Column Totals (N)	309	422	104	106	87	1028

DF = 48 Chi-square = 80.71 Probability = 0.002[b]

[a]Four cases where there were more than 13 children in the family were not included in the table.

[b]The probability of exceeding the chi-square value by chance.

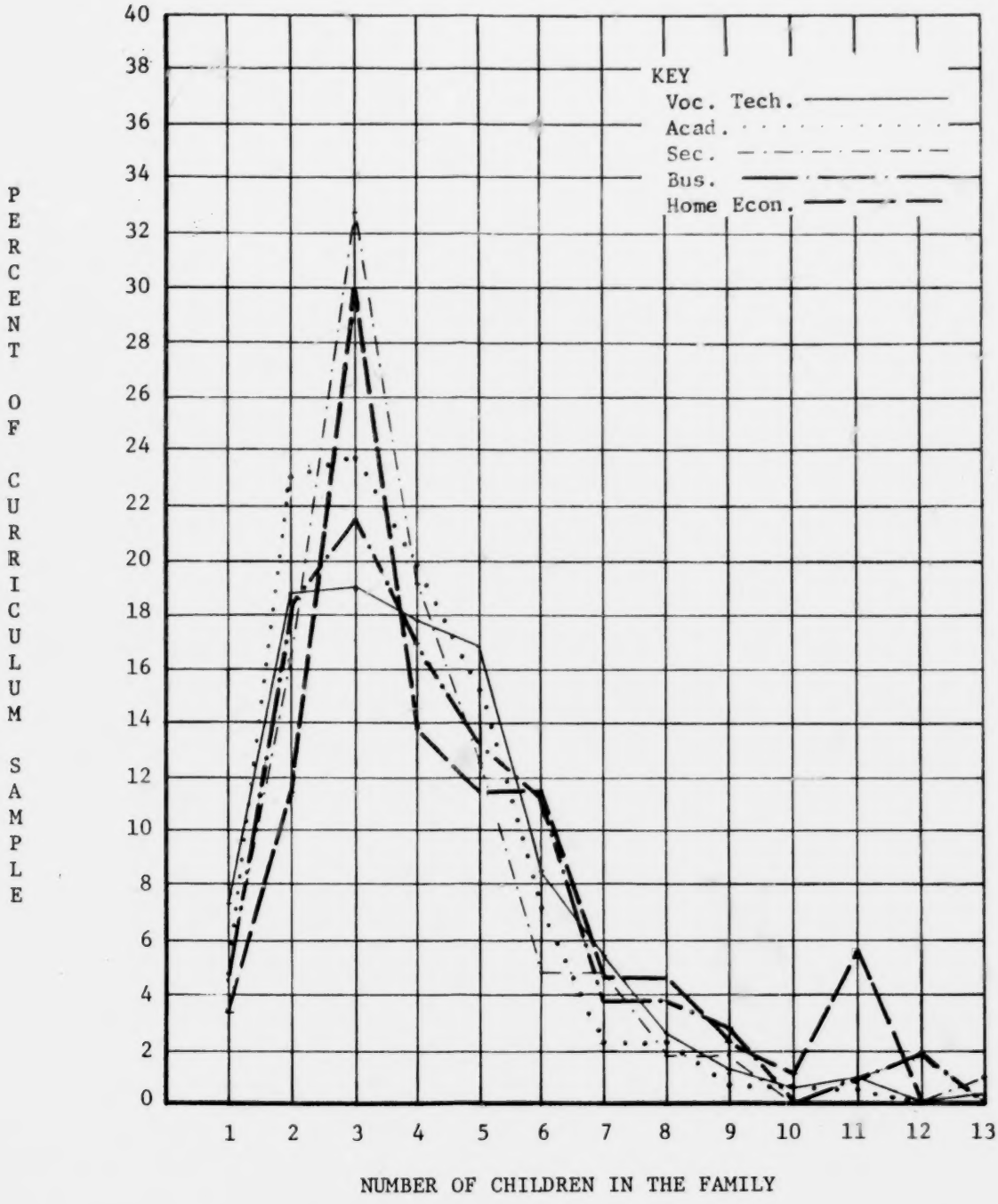

Figure 58: Percentage Distribution of Curriculum Samples by Total Number of Children in the Family

Table 24: Frequency Distribution and Chi-square Analysis for Number of Hobbies and Interests

Number of Activities	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
0	10	9	1	3	2	25
1	32	41	4	11	6	94
2	68	78	31	28	18	223
3	50	94	24	30	24	222
4	56	91	25	23	21	216
5	47	50	12	5	8	122
6	29	33	4	3	6	75
7	11	16	2	3	0	32
8	4	8	0	0	2	14
9	2	2	1	0	0	5
10	1	0	0	0	0	1
11	1	0	0	0	0	1
12	1	0	0	0	0	1
Column Totals (N)	312	422	104	106	87	1031

DF = 48 Chi-square = 54.51 Probability = 0.240[a]

[a]The probability of exceeding the chi-square value by chance.

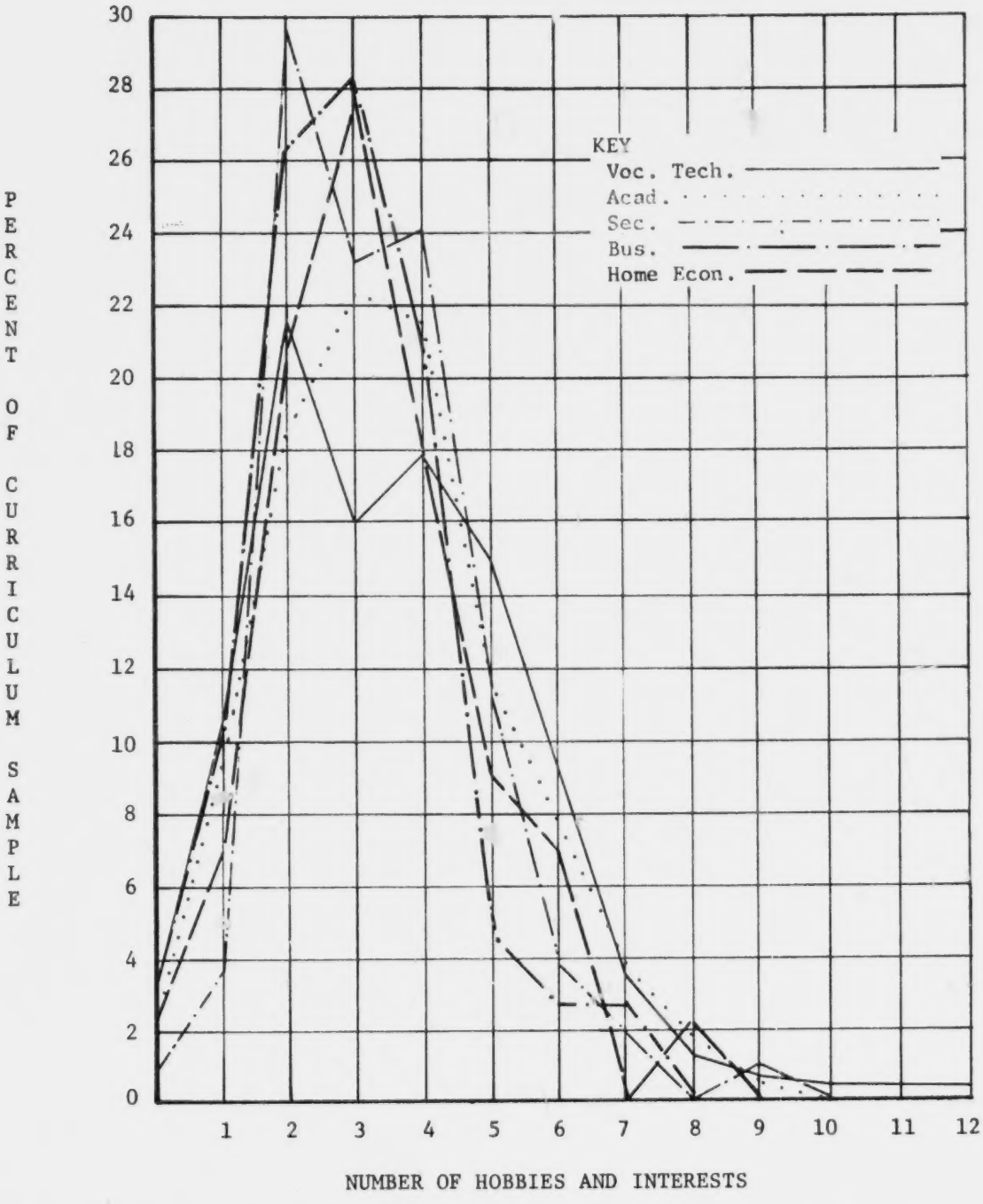

Figure 59: Percentage Distribution of Curriculum Samples by Number of Hobbies and Interests

Table 25: Frequency Distribution and Chi-square Analysis for Idealistic Education Plans

Plan to Attend College	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
Yes	146	346	43	34	41	610
No	151	65	60	69	42	387
Column Totals (N)	297	411	103	103	83	997
DF = 4	Chi-square = 165.31			Probability = 0.001[a]		

Table 26: Frequency Distribution and Chi-square Analysis for Realistic Education Plans

Plan to Attend College	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
Yes	116	278	30	19	22	465
No	171	106	71	84	60	492
Column Totals (N)	287	384	101	103	82	957
DF = 4	Chi-square = 162.22			Probability = 0.001[a]		

[a]The probability of exceeding the chi-square value by chance.

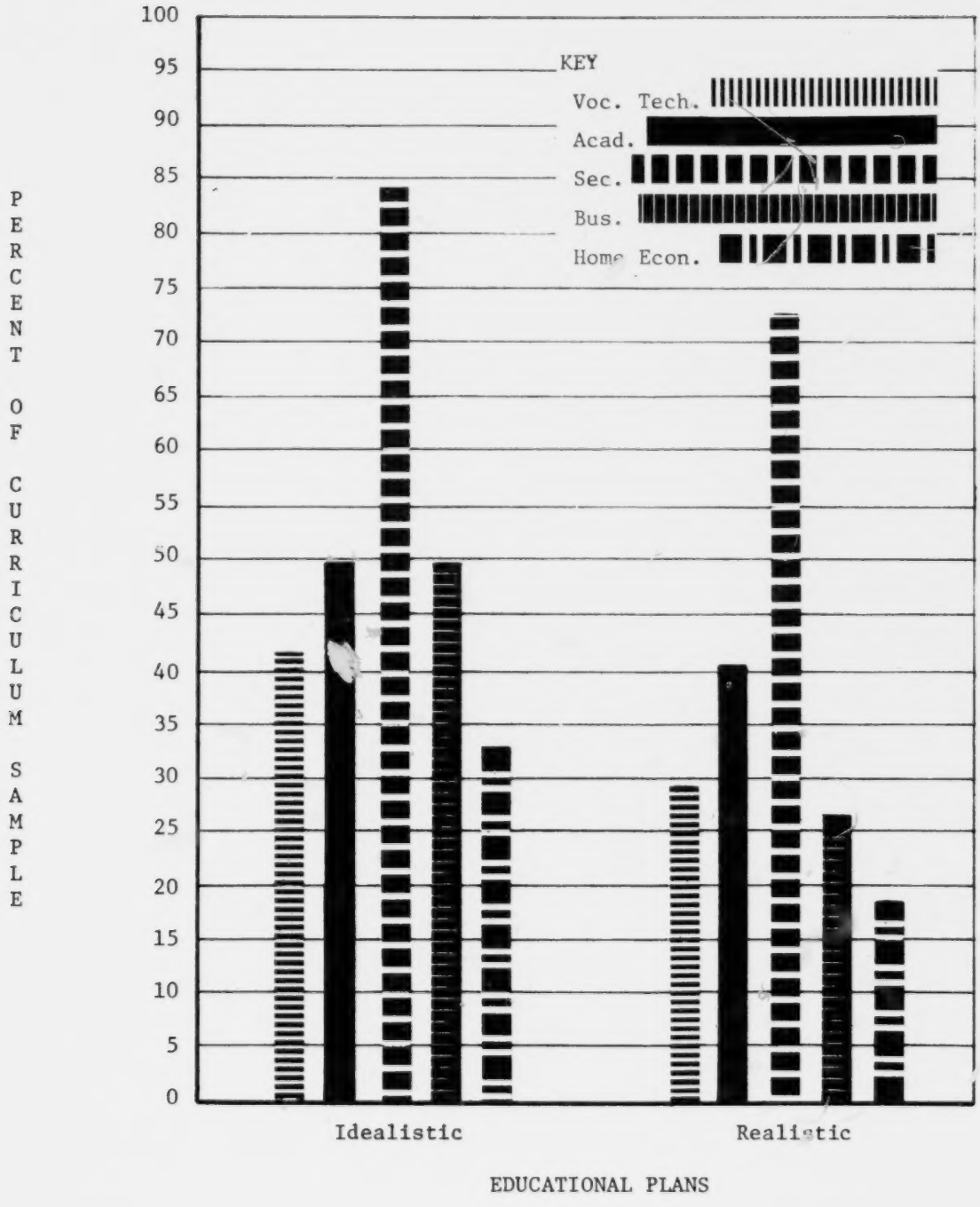

Figure 60: Percentage Distribution of Curriculum Samples by Educational Plans

Table 27: Frequency Distribution and Chi-square Analysis for Grades Repeated

Grades Repeated	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
None	209	367	91	81	61	809
1st thru 3rd	36	20	2	11	10	79
4th thru 6th	21	5	2	6	7	41
7th thru 9th	11	4	1	3	2	21
More than one grade	10	1	0	1	0	12
Column Totals (N)	287	397	96	102	80	962
DF = 16	Chi-square = 72.27			Probability = 0.001[a]		

Table 28: Frequency Distribution and Chi-square Analysis for Personal Traits

Traits[b]	Voc. Tech.	Acad.	Sec.	Bus.	Home Econ.	Row Totals
5	12	80	14	3	8	117
4	32	78	24	9	5	148
3	177	183	55	55	42	512
2	25	19	2	6	5	57
1	8	3	1	0	1	13
Column Totals (N)	254	363	96	73	61	847
DF = 16	Chi-square = 80.37			Probability = 0.001[a]		

[a]The probability of exceeding the chi-square value by chance.

[b]The values 5 to 1 represent a scale from high to low on the relative strength of the subject's personal traits as judged by his teachers.

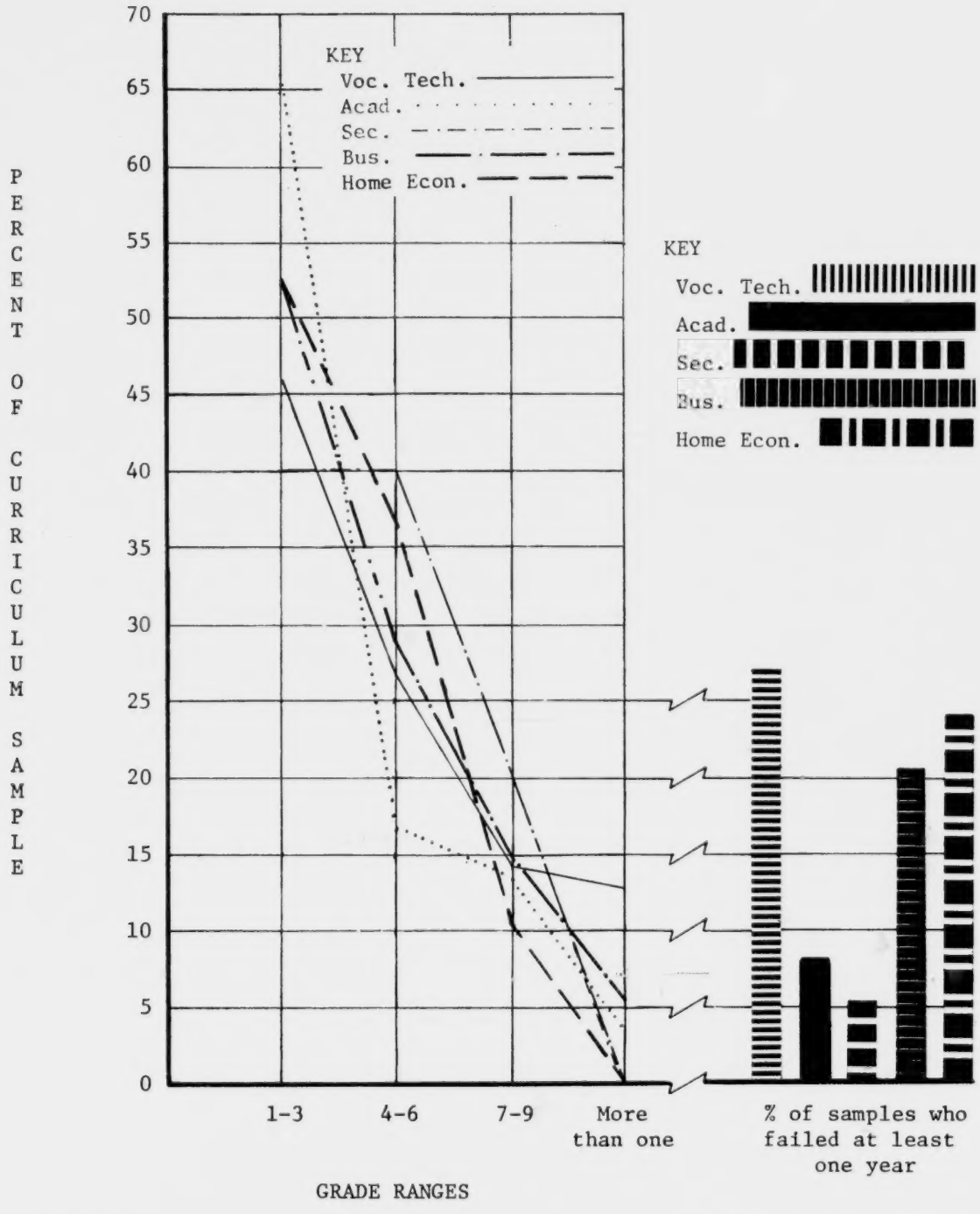

Figure 61: Percentage Distribution of Curriculum Samples by Grades Repeated

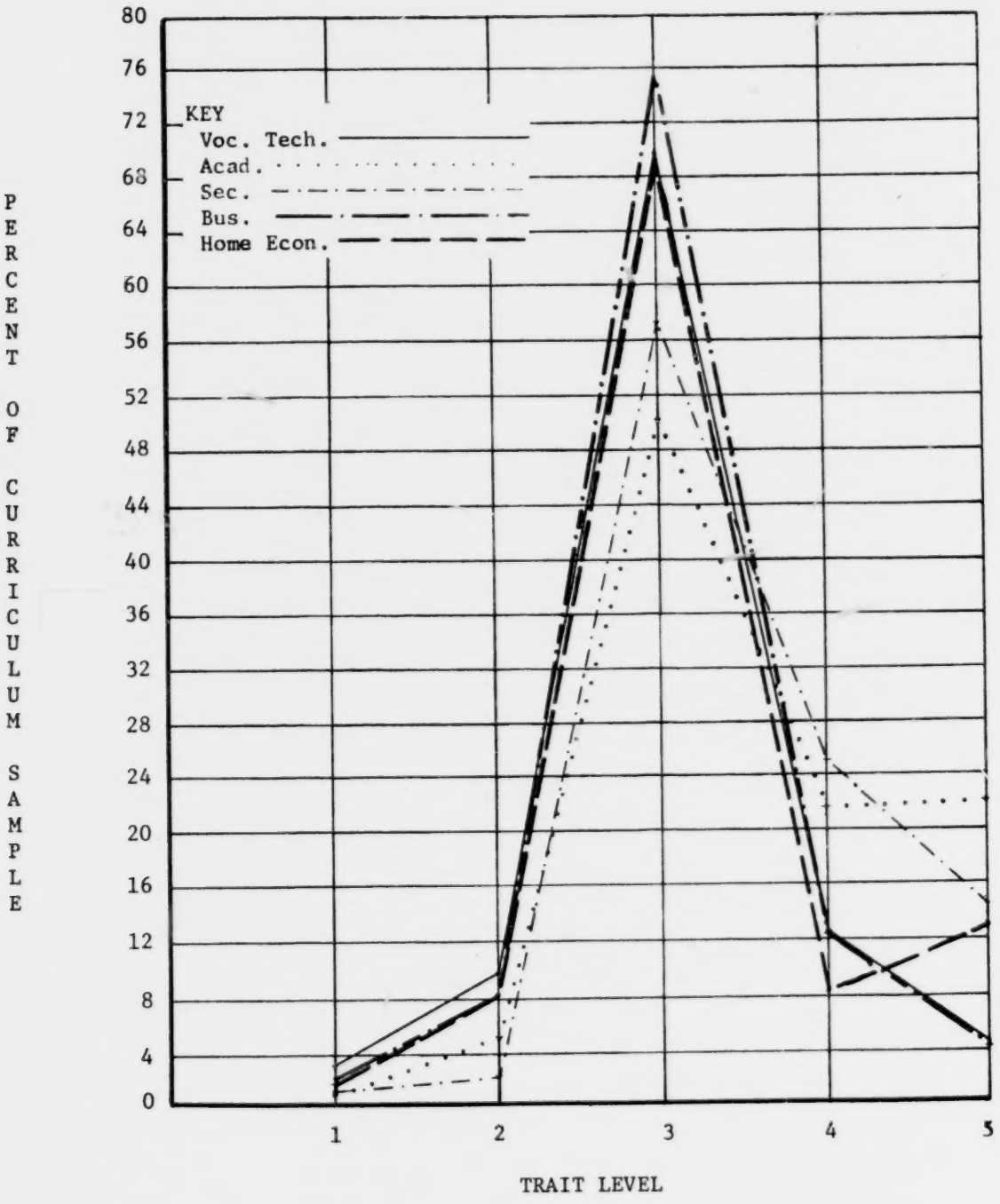

Figure 62: Percentage Distribution of Curriculum Samples by Level of Personal Traits

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